

Gravina Access Project
Draft Supplemental Environmental
Impact Statement

Appendices

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Gravina Access Project

Appendix A

DOT&PF Commissioner Letter

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MEMORANDUM

State of Alaska

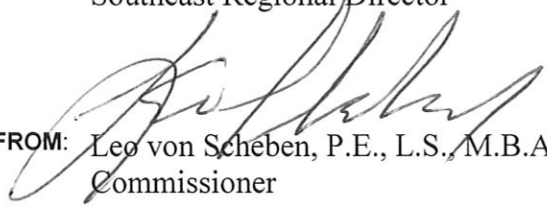
Department of Transportation & Public Facilities
Office of the Commissioner

TO: Gary L. Davis
Southeast Regional Director

DATE: September 17, 2009

TELEPHONE NO: 465-3901

FAX NUMBER: 586-8365

FROM:  Leo von Scheben, P.E., L.S., M.B.A.
Commissioner

SUBJECT: Cost Ceiling for
Gravina Access
Supplemental EIS
Alternatives

I understand that preparation of the Gravina Access Project Supplemental EIS is at the point where FHWA and DOT&PF need to screen suggested alternatives to determine those that are reasonable. One of the screening criteria is cost. This is particularly important in light of the 2007 directive by Governor Palin to discontinue work on the selected alternative, F1, because of its high cost. The Supplemental EIS must evaluate alternatives that the State can afford to construct and operate.

I have determined the construction and lifecycle cost ceiling for the Gravina Access Project alternative screening is \$305 million. Based on the funding sources we can anticipate in the time frame of the project, alternatives with construction and/or lifecycle costs above this amount have no likelihood of being funded.

Please note that this is not a guarantee that a particular level of funding can be obtained. Funding at this level would be difficult to secure. Due to the level of current and anticipated future federal aid, it is almost certain that a considerable portion of the required construction funds (beyond the \$70 million currently held) would need to be appropriated by the Legislature from the General Fund. Therefore I am requesting that any bridge alternatives be evaluated with tolls such that some of the construction and operation costs are borne by users. I believe a plan to collect tolls may be necessary in order to gain funding approval.

I look forward to completion of the project Screening Report in the near future and subsequent release of the Draft Supplemental EIS as soon as possible.

cc: Frank T. Richards, P.E., Deputy Commissioner, Highway & Public Facilities

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Gravina Access Project

Appendix B

Conceptual Stage Relocation Study and Assessment of Right-of-Way Acquisition Costs and Addendum

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Gravina Access Project

Appendix B – Part 1

Conceptual Stage Relocation Study and Assessment of Right-of-Way Acquisition Costs

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Gravina Access Project

Conceptual Stage Relocation Study and Assessment of Right-of-Way Acquisition Costs



**Agreement 36893013
DOT&PF Project 67698
Federal Project ACHP-0922(5)**

Prepared for:



**State of Alaska
Department of Transportation
and Public Facilities
6860 Glacier Highway
Juneau, Alaska 99801**

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October 2010

TABLE OF CONTENTS

1. Introduction.....	1
2. Right-of-Way Acquisition Requirements	2
2.1 Alternative C3-4	3
2.2 Alternative F3	4
2.3 Alternative G2	4
2.4 Alternative G3	5
2.5 Alternative G4/G4v	6
3. Right-of-way Acquisition Costs	6
4. Relocation Requirements	7
5. Relocation Assistance	7

Appendices

- A. Available Replacement Properties**
- B. 2010 Right-of-Way Figures**

Tables

Table 2-1: Alternative C3-4	4
Table 2-2: Alternative F3	4
Table 2-3: Alternative G2	5
Table 2-4: Alternative G3	6
Table 2-5: Alternative G4	6
Table 3-1: Summary of Right-of-Way Acquisition Costs	7
Table 4-1: Summary of Relocation Requirements.....	7

1. INTRODUCTION

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Highway Administration, is pursuing alternatives for improving access between Revillagigedo (Revilla) Island and Gravina Island in the Ketchikan Gateway Borough in Southeast Alaska. The project involves examining ways to link Revilla Island to Gravina Island, the location of the Ketchikan International Airport and adjoining lands that offer recreational and development potential.

Currently, six build alternatives are being considered for the Gravina Access Project. The build alternatives include two bridge alternatives: alternatives C3-4 and F3, and four ferry alternatives: alternatives G2, G3, G4, and G4v. Alternative C3-4 is a 200-foot-high bridge crossing located near the airport. Alternative F3 includes two bridges crossing at Pennock Island: one 60-foot-high bridge crossing over East Channel and one 200-foot-high bridge over West Channel. The four ferry alternatives include G2, a new ferry service between Peninsula Point on Revilla Island and Lewis Point on Gravina Island; G3, a new ferry service between Ketchikan (near the Plaza Mall at Bar Point) on Revilla Island and a location near Clump Cove on Gravina Island; and G4, a new ferry service adjacent the existing airport ferry route. Alternative G4v is a lower cost variant of G4 with the same right-of-way requirements and roadway improvements as G4, but does not involve a new ferry or ferry terminal. For purposes of this study, both alternatives G4 and G4v are evaluated together as Alternative G4/G4v. The DOT&PF is also considering a No Action Alternative for this project.

The purpose of this report is to identify those properties that would be acquired for construction of the build alternatives and require relocation of residences or business, and to determine the right-of-way acquisition costs associated with each alternative. This report provides:

- Maps showing each alternative and its proposed right-of-way requirements, footprint, and affected parcels (including residential and commercial properties).
- The assumed cost of acquisition of the right-of-way for each alignment grouped by ownership: state, borough, airport, and private (residential and commercial) land.
- An estimate of the number of households to be displaced. Since there are so few displacements, information on race, ethnicity, and income levels have not been included to protect the privacy of those affected.
- Information on available (decent, safe, and sanitary) housing in the area. This information is appended to this document.
- A discussion of businesses that may be displaced with each alternative and the number of employees affected. Appended to this document is information on commercial space available in the area to which the affected businesses may relocate.

- A statement that (1) the acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and (2) relocation resources are available to all residential and business relocatees without discrimination.

In addition to the bulleted items above, the FHWA Technical Advisory T 6640.8A, *Guidance for Preparing And Processing Environmental And Section 4(F) Documents* (<http://www.environment.fhwa.dot.gov/projdev/impTA6640.asp>) states that the following should also be considered when outlining relocation impacts:

“A discussion of any affected neighborhoods, public facilities, non-profit organizations, and families having special composition (e.g., ethnic, minority, elderly, handicapped, or other factors) which may require special relocation considerations and the measures proposed to resolve these relocation concerns.” Since there are no groups that would require any special relocation considerations, this has not been addressed in this report. “A discussion of the measures to be taken where the existing housing inventory is insufficient, does not meet relocation standards, or is not within the financial capability of the displacees. A commitment to last resort housing should be included when sufficient comparable replacement housing may not be available.” Because there is sufficient decent, safe, and sanitary housing available in Ketchikan, this does not apply and is therefore not addressed in this report.

“A discussion of the results of contacts, if any, with local governments, organizations, groups, and individuals regarding residential and business relocation impacts, including any measures or coordination needed to reduce general and/or specific impacts. These contacts are encouraged for projects with large numbers of relocatees or complex relocation requirements. Specific financial and incentive programs or opportunities (beyond those provided by the Uniform Relocation Act) to residential and business relocatees to minimize impacts may be identified, if available through other agencies or organizations.” Because this project would require a very limited number of relocations with all of the build alternatives, these contacts have not been made.

2. RIGHT-OF-WAY ACQUISITION REQUIREMENTS

The detailed right-of-way acquisition and relocation impacts for all six of the build alternatives are outlined below. Land owned by the State of Alaska, the Ketchikan Gateway Borough (KGB), or within the airport reserve (State) was considered to have zero acquisition costs, with the exception of affected lease lots or land owned by the Alaska Mental Health Trust Authority. Where the proposed alternatives are located on airport property, right-of-way acquisition and platting of right-of-way would not be required. The right-of-way requirements in terms of square footage and acreage for airport property, however, are reported in the tables below for consistency. The acquisition value is based on the tax assessor’s 2010 database, the percentage of the parcel acquired, and whether any buildings on the parcel were affected. Proposed right-

of-way requirements were developed for each alternative and the controlled-access right-of-way costs were determined by overlaying the right-of-way limits on the Borough's property tax maps and adding their 2010 appraised values.

The affected properties described are strictly for Revilla Island; no relocations will occur on Gravina Island or Pennock Island as a result of any of the build alternatives. For each alternative, a brief description of the affected properties is given as well as information on the area to be acquired (square feet and acres) and acquisition value (value of the acquired portions of each property) for each ownership type (i.e., private, local government, borough, state, airport, and existing right-of-way). The acquisition value is based on the estimated fair market value of the property derived from adjusting the tax assessor's data.

2.1 Alternative C3-4

At the location of the crossing of the North Tongass Highway by Alternative C3-4, two residential parcels would be affected by the proposed right-of-way, requiring the relocation of both residences (see **Table 2-1**). According to 2000 U.S. Census data, the average household size in the Borough is 2.56 people; therefore, roughly 6 people would be displaced with Alternative C3-4. The proposed alignment of Alternative C3-4 would not require the relocation of any other residences. The 2000 U.S. Census data indicate that 12.3% of all housing units in the KGB were vacant. The City of Ketchikan has experienced a population loss of 5.3% since the 2000 Census (estimated population for 2009 was 7,503)¹ and it is therefore reasonable to assume the current vacancy percentage rate is similar to that in 2000. A review of available residential properties in Ketchikan indicates there is plenty of comparable decent, safe, and sanitary housing available in the area. A list of residential properties available in September 2010 in Ketchikan that may be comparable to the relocated residences is appended to this document.

From its intersection with Signal Road, Alternative C3-4 would traverse the hillside along the alignment of Rex Allen Drive, continuing parallel to the North Tongass Highway for approximately 0.7 miles before the bridge crosses the North Tongass Highway and Tongass Narrows. Under Alternative C3-4, all of the businesses along Rex Allen Drive would be relocated and their properties would be acquired for transportation right-of-way. The affected businesses include Ketchikan Auto Body & Glass (2 employees), a warehouse owned by First City Electric (no employees), First Bank Emergency Operations Center and Maintenance Shop (employee number unknown), LK Storage (employee number unknown), SE Diesel & Electric (2.5 employees), and Cape Fox Tours (1.5 employees) [Note: a part-time employee is considered a 0.5 employee]. There is ample availability of comparable commercial property in the area; a list of commercial property available in Ketchikan is appended to this document.

¹ Alaska Department of Labor and Workforce Development. 2010. Ketchikan Resident Snapshot (2009). http://labor.alaska.gov/research/alari/5_13_153.htm (accessed October 19, 2010.)

Table 2-1: Alternative C3-4

PROPERTY TYPE	SQUARE FEET ACQUIRED	ACRES ACQUIRED	ACQUISITION VALUE (MARKET VALUE)
Airport* (State)	7,314,255	167.9	\$0
State (DNR tidelands)	1,108,881	25.8	\$0
AK Mental Health	14,898	0.3	\$200
Borough	1,410,850	32.4	\$0
Private	1,814,199	41.7	\$4,665,100

* Land area required from State and Borough lands is included for comparison purposes. The acquisition value is zero because the land would be provided for the project at no cost.

2.2 Alternative F3

Alternative F3 would intersect the South Tongass Highway south of the U.S. Coast Guard (USCG) Base in an area that is presently undeveloped (see **Table 2-2**). The proposed alignment would traverse undeveloped areas on Pennock Island and on Gravina Island before entering the airport property. The proposed alignment of Alternative F3 would not require the relocation of any residences or businesses.

Table 2-2: Alternative F3

PROPERTY TYPE	SQUARE FEET ACQUIRED	ACRES ACQUIRED	ACQUISITION VALUE (MARKET VALUE)
Airport* (State)	7,314,602	167.9	\$0
State (DNR tidelands)	243,993	5.6	\$0
Borough	3,069,575	70.5	\$0
Private	152,964	3.5	\$87,318
Federal (USCG)	11,196	0.3	\$5,661

* Land area required from State and Borough lands is included for comparison purposes. The acquisition value is zero because the land would be provided for the project at no cost.

2.3 Alternative G2

The proposed alignment of Alternative G2 would not require the relocation of any residences, but it would involve the construction of a ferry terminal and parking facilities on Peninsula Point at the existing location of Promech Air (12 full-time employees, ~120 seasonal employees). The hangar and the associated aircraft operations would have to be relocated to construct Alternative G2 (see **Table 2-3**). Also present on the same parcel at

Peninsula Point is a warehouse and Fire Station #3, both of which would require relocation. There is plenty of comparable commercial property available in the area, including several waterfront properties. A list of commercial property available in September 2010 in Ketchikan that may be comparable to these properties is appended to this document. Note: The State of Alaska owns and controls the lease to Peninsula Point, LLC; for this reason, it was assumed that there would be a cost for acquisition of the state land for this alternative. Should Alternative G2 be selected to be built, additional consultation with the City of Ketchikan would be required to establish the specific requirements of relocating a fire department.

Table 2-3: Alternative G2

PROPERTY TYPE	SQUARE FEET ACQUIRED	ACRES ACQUIRED	ACQUISITION VALUE (MARKET VALUE)
Airport* (State)	8,489,333	194.9	\$0
State (DNR tidelands)	304,920	7.0	\$0
State (Peninsula Point)	148,104	3.4	\$1,257,740
Borough	1,410,850	32.4	\$0

* Land area required from State and Borough lands is included for comparison purposes. The acquisition value is zero because the land would be provided for the project at no cost.

2.4 Alternative G3

The proposed alignment of Alternative G3 would not require the relocation of any residences or businesses. The ferry terminal and parking area proposed under Alternative G3 would be built on fill placed in Tongass Narrows and therefore does not require acquisition or relocation of any businesses. The southern end of Jefferson Way, located just south of Tongass Avenue, would be reconstructed to create access to the new ferry terminal and parking area. This would require right-of-way acquisition from the parking lots of three commercial properties: the NE corner of the Movie Gallery, the SW corner of the Safeway Grocery Store, and the SW corner of the Safeway gas station (see **Table 2-4**). The loss of parking area would not negatively impact the commercial properties and adequate parking spaces would remain. Should Alternative G3 be selected to be built, additional research and, if necessary, refinement of the alternative's footprint would be done to ensure adequate parking remains to meet city code.

Table 2-4: Alternative G3

PROPERTY TYPE	SQUARE FEET ACQUIRED	ACRES ACQUIRED	ACQUISITION VALUE (MARKET VALUE)
Airport *(State)	7,868,013	180.6	\$0
State (DNR tidelands)	282,446	6.5	\$0
Private	42,135	1.0	\$756,855
Borough	1,410,850	32.4	\$0
Native Corporation	9,018	0.2	\$202,094

* Land area required from State and Borough lands is included for comparison purposes. The acquisition value is zero because the land would be provided for the project at no cost.

2.5 Alternative G4/G4v

The proposed alignment of Alternative G4/G4v would not require the relocation of any residences or businesses (see **Table 2-5**). Alternative G4 would involve construction of a ferry terminal and parking facilities adjacent to the existing airport ferry terminals on both Revilla and Gravina islands. Improvements on Revilla Island for Alternative G4/G4v would occur on state-owned property and would therefore not require any additional right-of-way requirements.

Table 2-5: Alternative G4

PROPERTY TYPE	SQUARE FEET ACQUIRED	ACRES ACQUIRED	ACQUISITION VALUE (MARKET VALUE)
Airport* (State)	7,313,420	167.9	\$0
State (DNR tidelands)	243,973	5.6	\$0
Borough	1,410,850	32.4	\$0

* Land area required from State and Borough lands is included for comparison purposes. The acquisition value is zero because the land would be provided for the project at no cost.

3. RIGHT-OF-WAY ACQUISITION COSTS

Table 3-1 provides the total amount of property to be acquired for each alternative and the acquisition value based on the 2010 tax assessor's database. The market value of acquired property was calculated by multiplying the unmodified acquisition value (i.e., tax assessor's database) by 1.1, which is the rounded ratio of the tax assessor's values compared to estimated market values to be listed in the Alaska Taxable 2010 publication

(0.093 rounded to 0.10). These acquisitions result from the need to acquire properties, or portions of properties, which are directly impacted by the alternatives.

Where the proposed alternatives are located on airport property, right-of-way acquisition and platting of right-of-way would not be required and is therefore not reported in the final right-of-way acquisition table below. Also not included in **Table 3-1** are the areas of right-of-way that coincide with existing right-of-way.

Table 3-1: Summary of Right-of-Way Acquisition Costs

ALTERNATIVE	AMOUNT OF PROPERTY TO BE ACQUIRED (ACRES)	UNMODIFIED ACQUISITION VALUE FROM TAX ASSESSOR'S DATABASE (\$)	MARKET VALUE 1.1X ACQUISITION VALUE ¹ (\$)
No Action	0	\$0	\$0
C3-4	100.2	\$4,241,000	\$4,666,100
F3	79.9	\$84,526	\$92,979
G2	42.8	\$1,143,400	\$1,257,740
G3	40.1	\$871,772	\$958,949
G4/G4v	38.0	\$0	\$0

¹ Alaska Taxable 2010: Municipal Taxation Rates and Policies, Full Value Determination, Population and G.O. Bonded Debt. State of Alaska, Department of Community and Economic Development.

4. RELOCATION REQUIREMENTS

The potential residential and business relocations that would result from the Gravina Access Project alternatives are presented in **Table 4-1**. These relocations result from the need to acquire properties that currently have existing residences or businesses.

Table 4-1: Summary of Relocation Requirements

ALTERNATIVE	RESIDENTIAL RELOCATIONS	BUSINESS RELOCATIONS
No Action	0	0
C3-4	2	6
F3	0	0
G2	0	2
G3	0	0
G4/G4v	0	0

5. RELOCATION ASSISTANCE


As a means of providing uniform and equitable treatment for those persons displaced, the government passed the "Uniform Relocation Assistance and Real Property Acquisition

Policies Act of 1970” and the “Uniform Relocation Act Amendments of 1987.” This legislation provides for uniform and equitable treatment of persons displaced from their homes, businesses, or farms by federal and federally assisted programs and establishes uniform and equitable land acquisition policies for federal and federally assisted programs. Whenever acquisition of real property for a program or project by a federal agency results in displacement of anyone, the agency is required to reimburse displaced persons and provide relocation planning, assistance coordination, and advisory services². The DOT&PF Right-of-way Section has agents knowledgeable in all aspects of relocation who can handle all types of issues associated with the relocation of residents and their property. All property owners, without discrimination, would be compensated for their loss of property at fair market value and all displaced persons would receive all relocation benefits to which they are entitled at no expense to them. Relocations will be conducted in accordance with the “Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970” as amended, and relocation assistance would be made available to all businesses and residential property owners affected by the Gravina Access Project without discrimination.

² Federal Highway Administration. 2009. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. <http://www.fhwa.dot.gov/realestate/act.htm>.

Appendix A

Available Replacement Properties



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Homes for Sale in the City



[4106 Vallenar Lane \\$868,000](#)

3900 square foot custom home in Cambria. Private landscaped 1/3 acre water view lot. Quality energy efficient construction. The master bedroom suite includes extra closets, large bath, master bedroom sitting or office are with an extraordinary water view. Kitchen will make any chef proud. Much more including garage, basement shop and storage, den, library.



[1240 Sayles Street \\$469,000](#)

Beautiful Custom Home. You won't find a more gorgeous interior and panoramic view of the Ketchikan waterfront. This home was totally remodeled in the past 3 years and offers a state of the art kitchen with stainless appliances and granite countertops, decking accessible off the kitchen and dining areas, updated plumbing, electrical, fabulous flooring, contemporary fixtures, gorgeous master suite with Jacuzzi tub, windows, large slate entry, and new metal roof. The view encompasses the Ketchikan waterfront and Deer Mountain. You won't find a more lovely home!



[525 Front Street \\$491,000](#)

Enjoy the incredible view and great rental income from this downtown triplex. Properties such as this are rarely available. Solid construction and great maintenance combine to make this a positive investment property. Main unit has 3 bedrooms, 1 bathroom. Rental units have 2 large bedrooms and 1 bathroom each. Located above the tunnel within walking distance of downtown Ketchikan.

[3350 Denali Avenue \\$299,000](#)

Large city home that can be kept as a single family home or easily converted to a duplex. Gorgeous view of the Narrows from the deck. Very nice kitchen cabinets and exceptionally well-maintained throughout. Paved off-street parking and a two-car carport.



3923-3925 Alaska Avenue \$298,000

Quality construction and an ideal floor plan make this west-end duplex a great family home. The upstairs has a spacious living room with a fireplace, large windows to enjoy the view, and a deck for outdoor entertaining. The bright kitchen has double ovens and a Jenn-Air cooktop. Two bathrooms, a laundry room, tons of storage space and a downstairs apartment. Plenty of parking plus a two-car garage.



703 College Court \$289,000

A beautiful 3 bedroom 2 bath home with so much to offer. Completely remodeled in 2008 so the interior is bright, cheery and new. Multi levels give the floor plan great space and character. New windows were installed and the home achieved a 4-star energy rating. Efficient electric heat, laminate wood flooring, tile, and many modern upgrades. Wonderful ocean view and situated to receive good sun exposure. A home that offers many amenities and has been well maintained.



765 Grant Street \$285,000

Alaskan lodge style interior in a beautiful, secluded in-town location at the end of a street. A trail systems begins out your door. Cozy hardwood floors, 2 propane fireplaces and an indoor sunken hot tub. Three levels, large master loft, master bath, large exterior decks and a quick walk to downtown.



114 Elliot Street \$269,000

Charming historic 3 bedroom home with a one bedroom apartment downstairs. Nice water views and convenient location. Well-appointed home



that has previously been operated as a B & B. If you are looking for a business, an investment, or a beautiful home, you will want to view this property.



218-220 Heneghan \$259,000

Exceptional in-town duplex. This 3/2 upper, 1/1 lower duplex offers plenty of living space upstairs with a deck, fenced yard, 2-car carport and filtered view of the water. This home has been meticulously maintained and updated with new ceramic and laminate flooring, all new appliances in the lower unit and fresh paint throughout. Ample parking and tons of storage.



1251 Millar \$239,000

Enjoy wonderful water and city views from this charming Cape Cod style home. Convenient location just a short walk to downtown. Upper unit has three bedrooms, 1 bath, large deck, wood floors and carport. Cozy lower unit is a 1 bedroom, 1 bath with many custom features.



867 Monroe Street \$229,000

The perfect starter home! This property has been wonderfully maintained and is move-in ready. Located just above the high school with excellent parking, carport, covered porch, back deck with yard. This 2 bedroom, 1 bath home has beautiful maple hardwood flooring, large kitchen with bay and garden windows, family room that could be converted to a 3rd bedroom, and spacious living room. New metal roof, new gutters and exterior doors. A must see!

1131 Jackson \$225,000

This darling 3 bedroom, 2.5 bath home is completely updated and ready for a new owner! New appliances, sunny back deck, one-car garage, and a little courtyard lawn give you all the comforts of home while the exceptional condition won't keep you tied to a honey-do list. New tile foyer. Great fireplace in the living room with new tilework. If you want the most house for dollar...this is it!



1453 Ketchikan Lakes Road \$169,000

Uncommon value for this 3 bedroom, 2 bath ranch-style home. Large kitchen with wood cabinets, good parking, and a large deck to enjoy the mountain view. Conveniently located close to schools and near the downtown area. Built in 1999, this home offers a wonderful floor plan and is easy to show.



391 Bawden Street \$175,000

Darling Bawden Street home with a great view of Deer Mountain. This home has been well-maintained with open living room, nice sized kitchen and great little back yard. Two bedrooms with another smaller room that could be used for an office or nursery. This home has to be visited to be appreciated. Good location within walking distance of downtown Ketchikan.



837 Jackson Street \$159,000

This home is located in a beautiful neighborhood on a large city lot with a fenced back yard. The home offers 4 bedrooms, one bath, sunken living room, dining area, kitchen, large back deck and new energy upgrades that include additional insulation and some newer vinyl-clad windows. Good off-street parking. Was \$169,500.

2034 First Avenue \$164,000

Water view hillside home. Daylight basement, exercise and storage room. Main floor one bedroom, bath, kitchen and living room. Top floor attic bedroom and more storage. Energy audit with new windows and doors. Two off-street parking spaces. Landscaped yard. Yard storage buildings.



974 W Sesame Street \$149,000

Sesame Street two-bedroom townhouse. Great back yard with a large deck. Over 900 sq.ft. of shop, storage and covered parking. Roof and deck upgrades in progress.



1250-1256 Water Street \$135,000

The neighborhood is classic. The view is great. The potential is there. The structures need all your tools and experience. Small rental house with garage and the remainder of a duplex unit damaged by fire. Water Street location uphill side. House currently rented. Handy person project.



1123 Woodland Avenue \$120,000

This duplex needs a lot of work but has income potential. Good floor plan and convenient location add to the possibilities. Upstairs attic area has great storage. This property is very easy to show and would allow for two very nice apartments.

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Homes for Sale South of Town



[5834 South Tongass \\$530,000](#)

Waterfront home with a lot to offer. Fabulous water view with whales playing in front of the house. 2 fireplaces, large yard, 2 bedroom apartment, double car garage and detached shop. Main residence has 4 bedrooms and 1.5 baths. Brand new roof on both house and shop. Well-built home on a premium piece of waterfront property.



[8366 S Tongass \\$479,000](#)

Lovely custom 4 BR/3BA beach home in Herring Cove. Gracious entertaining area, master cook's kitchen, stained glass from Ketchikan's historic Catholic Church. Wrap-around sunwood decks, garden, greenhouse, and landscaped grounds. Bonus apartment over the garage and 2-car carport. Great B & B potential with an unbeatable view.



[5820-5822 South Tongass \\$439,000](#)

Price Reduced

Wow! Does not even come close to describing the stunning views from this waterfront home. This 2 bedroom one bath home with a one bedroom apartment has been upgraded throughout and is move-in ready. Detached garage, lots of parking and lovely landscaping. The perfect Alaskan setting to view the whales, eagles, and cruise ships passing by.

www.KetchikanWaterfrontHome.com

[683 Blueberry Drive \\$395,000](#)



Very appealing Forest Park home with many extras. Great floorplan with generous-sized rooms. Family room off the kitchen, master bedroom with bath, great pantry and 2-car garage. Lower unit is 3-bedroom rental with excellent rental history and recent updating. Detached shop is right for all your projects or for much needed storage.



4056 South Tongass \$349,000

Classic Ketchikan Waterfront home with apartment. The Homestead beach house dates from the 1940's. 3 bedrooms, den, bath with a claw foot tub. Wrap around sun porch loaded with windows. Great play aea for kids. Front yard with lawn and beach picnic area. Super water view. Downstairs one bedroom apartment and basement storage. Concrete foundation. Now has area water, sewer and fire protection.



2287 Oyster Avenue \$339,000

Price Reduced

This gorgeous 3 bedroom 2.5 bath home is located on a splendid landscaped yard--everything you would want in your new residence. A covered front porch wraps around to the side deck with hot tub. The floor plan offers both family space and a formal living room that accommodates every lifestyle. The upstairs master bedroom features vaulted ceilings, generous closet space, and an attached master bathroom. A fabulous kitchen is an entertainer's dream with designer's touches everywhere. www.2287OysterAve.com



3357 S Tongass Highway \$252,000

Charming water view home. Located just steps from Rotary Beach, this property offers an extra lot, great parking, play area, greenhouse with power and landscaping. The 1950's home has 2+ bedrooms, 1 bath, dining area, good-sized living room, and a well-equipped kitchen.



4033 South Tongass \$250,000

Triplex located at the historic Homestead Dairy, Mile 4 South Tongass. Occupies a large 31,127 sq.ft. commercially zoned lot. One, two and three bedroom apartments.

3419 South Tongass \$239,000



Location, Location, Location! Take advantage of amazing water views and beach access at a fraction of the price of a waterfront home. Located across the street from Rotary Beach, this 3 BR/1.5 BA rambler is situated on an oversized lot with new decks and ample parking.



7956 South Tongass \$235,000
Herring Bay historic home on a garden like half acre lot. Modern upgrades include a remodeled kitchen and bath. Master bedroom on the main level with two attic bedrooms upstairs. Oil forced air heat with woodstove in the living room. Small garage with greenhouse. Garden like yard. Water view.



2410 Eagle Avenue \$169,000
Very recently remodeled home on Eagle Ave in the City of Saxman. 3 bedrooms and 1 bathroom home with a nice front deck and a sweet little yard. Great little house for just starting out, downsizing, or for an investment. Terrific rental history.



90 Bull Pine Place \$149,000
Family home situated on an excellent Forest Park lot. Surrounded by trees, this flat lot at the end of a quiet cul-de-sac has 4 bedrooms, 2 baths, and a computer room and has been recently upgraded. Single level floor plan is perfect for busy lifestyles and the large flat lot has room for all the family's toys. This home is priced right!

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[Home](#)[Homes City](#)[Homes North](#)[Homes South](#)[Condominiums](#)[Land and Lots](#)[Outlying Property](#)

Homes for Sale North of Town



142 Raspberry Lane \$925,000

Offering the finest in waterfront living. A private paved driveway leads to this beautiful 3 bedroom 2.5 bath home situated on over an acre of meticulously landscaped grounds. Just a few of the amenities include private boat ramp, heli-pad and airplane hangar.



218 Raspberry Lane \$699,000

Beautiful waterfront home with great amenities. Enjoy the open floor plan and spaciousness of this quality home. Amenities include large master suite with private office and deck, great water view, one-bedroom apartment, 3 garages, shop and hot tub. The waterfront location is private and scenic.

15063 Lizzie Lane \$525,000

Fabulous waterfront home. Enjoy kayaking from your front lawn, a fun BBQ from your covered wrap



around deck, and a great little sawmill to boot. This 1994 quality home is 3,800 sq.ft. in size, offering 4 BR, 2.5 BA, a formal dining area, 2 family rooms with one being a loft area, large living room, fantastic mastersuite with glassed in shower and tub and storage galore. The property also includes a detached 2-car garage with storage and ample parking on this 1.17 acre lot. Fully landscaped including fruit trees. A rare find!



1122 S Point Higgins \$459,000
New Lower Price

Gorgeous S Point Higgins cedar home with potential rental income. Enjoy the amazing location and private setting of this beautiful 4 bedroom, 3 bath home. Gourmet kitchen, vaulted ceilings, versatile wood/oil combination furnace, loft area, oak cabinets, tiled counters/vanities, bay windows and a one-bedroom rental unit to offset the mortgage. Well established landscaping with garden area, fruit trees, and Japanese maples. Brand new roof and woodstove. Short walk to the beach.



12068 Dewberry Lane \$395,000

This north end executive view home is as suited to personal privacy as it is to entertaining guests. The well designed floor plan masterfully balances 3 large bedrooms, a spacious living room, and a remarkable kitchen equipped with all the appliances and an abundance of cabinets. The two bonus rooms offer the flexibility for any space that best fits your lifestyle. The master bedroom has an adjoining spa bathroom with double vanity and enormous Jacuzzi tub. Constructed in 1999 and exceptionally well maintained.

www.12068DewberryLane.com

569 D-1 Loop \$350,000

Country living at its very best! This property has been professionally landscaped and offers a lovely home featuring rock work, greenhouse, shop building with electricity, newer 2-car garage with attic storage, hot tub, large yard, creek and greenbelt privacy. The house has 3 BR/1.75 BA, loft area, beautiful sun room, state of the art



kitchen with French doors to a patio, beautiful cedar interior, wonderful flooring and a friendly floor plan.



26 Pond Reef Road \$349,000

Gorgeous Pond Reef home in a private setting. Three bedrooms plus den, 2 large baths. Beautifully maintained home with recent upgrades. Large, well-appointed kitchen, sliding French doors separate the dining and living room areas. Watch amazing sunsets from your deck. Price includes adjacent lot with pad.
www.126PondReefRoad.com



9047 North Tongass \$329,000

Cedar Chalet home on excellent half-acre lot. Spacious family home has room for kids, boats, gardens. Four bedrooms, 3 bathrooms, loft library area, garage, storage galore. 700 sq.ft. deck, covered BBQ area. View. Professional remodeling and upgrades to all electrical, plumbing and more.



152 Clover View Road \$299,000

Beautiful view of Clover Passage and located in a wonderful neighborhood. This home offers 3 bedrooms, 1.5 baths, lovely interior, oak kitchen cabinets, stainless refrigerator, view from the master suite. This property also has a 2-car garage with shop and office area and is very nicely landscaped.

1452 Pond Reef Road \$299,000

Sale Pending

Perfection best describes this recently upgraded 4



bedroom home. Well-appointed and family friendly. Recent upgrades include remodeled kitchen, baths, laundry, new wood stove, all new windows and fresh painted inside and out. Large flat lot and nice landscaping. Shows like brand new.

www.1452.PondReef.com



12023 North Tongass \$289,000

Enjoy the privacy of this attractive 3 bedroom, 2 bath home located on a spacious 35,000 sq.ft. lot. Recently updated with new kitchen, siding and deck. Great water view. Built in 1976 and remodeled in 2008. Large deck and great sun exposure. Enjoy country living at its best!



62 Guard Court \$269,000

North Tongass Tranquility. Enjoy this creekside 3 bedroom, 2 bath home that also features an office/den and large family room. The master suite is wonderful, offering a walk-in glass shower, large soaking tub, and beautiful fixtures and tile work. The living room has cathedral ceilings and the floor plan is great. The property has a newly refinished front deck and lots of parking area and space for a yard.



150-152 North Point Higgins \$265,000

Price Reduced

Charming country duplex with so much to offer. The main unit has 3 bedrooms, 1 bath with new tile flooring, interior paint, bay window, and wonderful floor plan. The one bedroom, one bath apartment is new with beautiful wood cabinets, vaulted ceilings, and much attention to detail. There is a 2-car garage, greenhouse, and a beautifully landscaped yard with planters, a variety of trees, shrubs, and perennials.



270 Yeoman Road \$249,000

This north end home offers 3 bedrooms, 2 baths and room to expand. Situated on a large flat country lot with detached storage building and tons of parking. Great location near North Point Higgins School and Boat Harbor.



537 Strawberry Road \$249,000

Country privacy and a trail to Coast Guard beach. Wonderful family home located at the end of Strawberry Road. Large flat site with plenty of parking and a detached shop. Home features 3 bedrooms, 2 baths and separate living and family rooms, large deck and brand new carpet.



77 Phillips Lane \$224,000

Country three bedroom home with garage, large deck and a great lot with room for boats, gardening and kids play areas. 1,080 sq. ft. finished upstairs. 1,080 sq.ft. unfinished downstairs including garage. Just off Mattle Road in the Clover Pass area. 1/3 acre lot. Monitor heat plus wood stove. Improve your equity. Save money. There is fix-up work to be completed on this home.

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CITY HOMES

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City Single Family
Hu

659 Harris Street

\$135,000

Convenient downtown cottage ready for your TLC and finishing touches. Cozy two bedrooms and one bath, new roof in 2007, updated kitchen and separate laundry area. Large deck in front expands your living space.

Currently used as rental; could be a cute starter home.



City Single Family
REO World

945 Lincoln St

Was \$143,550

NOW \$136,373

Popular Lincoln Street Location

Vacant, easy to show

Motivated Seller

Call today to schedule Appointment.



City Single Family
HUD

3418 Arnold

\$160,000

NEW LISTING

3 Bedroom, 1 Bath fixer upper. Spacious kitchen/dining area. Standup basement with concrete floor, workshop and utility area. Private backyard. Lots of space to work with on the main floor. Bring your ideas and your toolbox. This one has potential.

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**City Single Family
Dahle**

1106 Park Ave

\$169,500

Older but in very good condition. **Two** 1BR/1BA units with an Excellent rental history in a convenient location. This a wonderful investment property.



**City Single Family
Zeng**

375 Bawden Street

**Was \$199,500
Now \$174,000**

Older 3 bedroom home in downtown area. Remodeled with upgrades in 2006. Large private backyard with view of Deer Mountain. 1 1/2 Baths and a spacious mud room/utility room entry. Call us for an appointment



**Multi- Family Duplex
HUD**

722 / 724 Hill Rd

**Was \$210,000
NOW \$189,000**

- Please Note: **ONLY HUD Registered Brokers** can place Bid.

**Contact Alliance Realty For Additional
Information and To Schedule a Showing.**

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**Duplex
Fudge**

706 A/B Bayview St
NEW LISTING

\$220,000

Duplex with a view of the water front, mountains and City Float. Upper Unit - 2BR/1BA, Lower Unit - 1BR/1BA. There is also a small art studio off the Upper Unit. Great location to watch the tourist ships come and go, also great for watching the Fireworks.



**Single Family
Prosser**

1260A Millar St

\$224,500

Neat as a pin!

Granite counter tops, new appliances, new energy efficient windows, new slab laminar heat source under new basement tile in the family room, and new greenhouse are only a few of the numerous upgrades to this wonderful 2-plus bedroom home. Great deck to enjoy the fantastic water view. Delightfully private back yard with a water view too featuring a hot tub, shop/shed, cold smoker, and your own waterfall and creek.



**Single Family
Bowers**

424 N. Yorktown Dr
SALE PENDING

Was \$234,000
NOW \$229,000

Practically BRAND NEW 3 bedroom, 1.75 bath home featuring beautiful new solid-granite kitchen counter tops, new floor coverings, new light fixtures, and new interior doors. New dishwasher and new garbage disposal in the roomy kitchen. New Toyo oil stove for great energy efficiency. Check out this home soon, just painted and sparkling!! Natural forest setting with seclusion but all the in-city conveniences. PUR's recorded - eligible for AHFC financing and owner has just installed a new roof!

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**City Duplex
Lindeman**

2303 1st Avenue

\$234,900

3 Bedrooms with bonus room and a carport plus a ground floor apartment to help with the payment. Ideally located close to schools and shopping with a fenced yard and covered parking. Exterior repainted in 2009. Classic 1950's style. Call us today!



**City Single Family
Lontz**

1012 Dunton Street

\$239,000

Older 3 Bedroom, 2 Bath home – recently updated with new kitchen, interior paint, carpeting & refinished hardwood flooring. Tremendous view of the waterfront! Plenty of off street parking.



**City Single Family
Security Trust**

3739 Alaska Avenue
SALE PENDING

Was \$269,900
NOW \$239,900

3 bedroom, 1 3/4 bath home with family room. This Carlanna neighborhood home was completely remodeled in 2005. New roof in summer of 2007. All new appliances and carpet installed in 2005. Family room easily converts to a large 4th bedroom. Large driveway suitable for a carport or garage. Large backyard, good off-street parking and a view. Come see this one!

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**City Duplex
RS Rentals**

3815/3817 Baranof

Was ~~\$295,000~~
NOW \$289,000

3 Bedroom / 3 Bathroom Duplex. Totally renovated in 2006. Lots of off-street parking. 1 3/4 Bath in Upper Unit. Large bath with double sink in lower unit. Separate Utility rooms in both units. Propane heat in both units. Excellent income property or live in one and let the rent help make the payment.



**City Duplex
RS Rentals**

2437/2439 5th Avenue

Was ~~\$299,000~~
NOW \$289,000

3 Bedroom/3 Bedroom Duplex. Close to the high school and all westend shopping. New propane hotwater furnaces. Washers & Dryers in both units. Parking for 4 vehicles. Extra storage in both units. Each unit rents for \$1300/month and the tenants pay heat and utilities. Excellent investment property or live in one and rent the other.



**City Duplex
Pitcher**

623 Grant Street

Was ~~\$360,000~~
NOW \$329,000

WOW, this picturesque home is really special. Listed on the National Register of Historic Places. It has been lovingly maintained and updated while preserving its historic charm and integrity. It is 1437 sf upstairs with 2 bedrooms, 1.5 baths and a den with a storage room downstairs and a 1 bedroom apartment (currently rented for \$800/mo incl. heat) downstairs. This magnificent home features real hardwood floors, tile in the bathroom, granite tile kitchen counter tops, custom-built oak kitchen cabinets, crown molding, glass French doors, built in hutches, bookshelves and a stone fireplace. It has a water view, fenced yard with a beautiful garden and a detached garage. A rare opportunity to own one of Ketchikan's finest historic homes!
Owner Motivated — Make An Offer ! !

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City Single Family 719/721 Lotus Street \$375,000
Towne

Stylish living in this nearly new triplex w/two 3-bedroom, 1 ½ bath townhouses and a 2-bedroom, 1 bath Apt & garage downstairs. Beautiful oak kitchens, tiled kitchen & dining area floors in both townhouse-style Apts & inlaid wood laminate in the lower kitchen, plush carpet in the living & bedroom areas. Great floor plan w/direct access from Lotus Street to the front of the upper units plus extra parking & access from Deermount Street in the back. Walking distance to downtown, schools, ball park, recreation center & grocery store. Vinyl siding, low maintenance, nearly new & excellent income equals a great investment or a home w/your tenants making most of the payment!



City Single Family 885 Summit Terrace \$379,000
Bauer

This 3 Bedroom, 2 1/2 Bath home is virtually brand new - very high quality with all the amenities and a gorgeous view. You won't find a nicer home.



City Duplex 748 Miller Ridge Was ~~\$599,000~~
Freer *Now* \$539,000

Great view of Narrows & surrounding Islands from this 2 Bedroom, 2 1/2 Bath home — plus Office or 3rd Bedroom. A 2 car attached garage w/ 1/2 bath. 1 Bedroom Apt. A beautiful Evergreen Perennial garden—that lines the front of home.

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City Triplex Winther

324 Cedar Street

Was ~~\$695,000~~
NOW \$649,000

Victorian era elegance at its best showcased in this magnificent one-of-a kind home. Charming foyer w/a private desk enclave, opulent parlor w/a fireplace, formal dining area w/French doors to a deck w/a spectacular view of the quaint town & popular Inside Passage, beautifully polished hardwood floors, gorgeous Manor Suite w/built-in wall safe, delightfully sunny & bright kitchen w/casual dining & lovely sun room. Ascend to the Roses Rm w/its window seat & private BA or indulge yourself in the luxury of the majestic Madame's Boudoir featuring a garden window seat overlooking the downtown waterfront, deep soaking Jacuzzi tub & modern tile & glass-brick walk-in shower. Live in the romance of yesteryear w/the comforts of today! Downstairs there is the income potential of the 2-BR Fish Pirates Apt & the 1-BR Country Manor, each w/their private entrances. Lovingly maintained (current inspection report available) w/an English garden to greet you & awesome water view.

NORTH HOMES



North Single Family Kircher

1086 Pond Reef Road

Was ~~\$259,000~~
SALE PENDING Now \$229,500

Unique north end home w/lots to offer. Oversized lot. Barn style construction w/dormer windows adds to the spacious feeling of the interior. Stainless steel finish appliances. New floor coverings. 3 Bedrooms, 2 Baths, fenced yard, private deck off dining room & good parking. What more can you ask? Call us today. **Seller willing to take any good offer !! Let's get together !!**



North Single Family Russell

110 Cranberry Rd

Was ~~\$299,900~~
NOW \$289,000

A very well kept home on Cranberry Rd. Built in 1999 but shows as new. 3 BR, 2BA, Large yard, shop/storage building – ready to be enjoyed!

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NORTH HOMES



North Multi Family
Stulken

81 Phillips Ln

\$325,000

Totally Renovated Duplex! Two 3BR/2BA units, renting at \$1350/mo. Live in one and rent the other - B & B or just a fantastic investment.



North Single Family
Pihlman

168 Raspberry Lane

Was \$499,000

Now \$485,000

Lovely Home on very nice Beach. 2 Bedroom, 2 Bathroom - Lots of charm with large detached Shop in protected cove off of S. Point Higgins on Raspberry Lane. 1 + Acres

SOUTH HOME



South Single Family
Ballinger

867 Birch Circle

Was \$189,900

Now \$177,900

This is a 3 bedroom, 1 3/4 bathroom home w/family room, workshop, covered parking & storage. Located in Forest Park adjacent to a greenbelt. Quiet cul-de-sac street. Upgraded siding & new roof w/new appliances. Lots of space for the price. Call for an appointment.

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South Single Family 6019 S. Tongass Hw Was \$201,000
Love, Estate of *Now* \$180,000

Small home w/a Huge View on large lot. 1 Bedroom, 1 Bath home w/ detached garage located on a large, 47,445 square foot lot overlooking George & Carroll Inlets.



South Single Family 6060 Churchill Ct Was ~~\$399,000~~
Dunkin *Now* \$369,000

Picture perfect custom home featuring wooded privacy, partial water view, gourmet kitchen, tall ceilings, Jacuzzi tub & a large 2-car garage. Super energy efficiency w/a HRV & the highest AHFC 5-star plus energy rating. Built in 2003 this spacious 3 bedroom, 2.5 bath home plus den exudes comfort & elegance. Check out the 1476 sf unfinished basement for future possibilities. **Seller willing to pay up to \$3,000 of Buyers closing costs.**



South Multi-Family 62 Willow Circle \$389,000
Willoughby *NEW LISTING*

Absolutely gorgeous, ultra-modern new kitchen and stunning Brazilian Koa hardwood floors will take your breath away in this fabulous 3BR, 2BA home with 2BR apartment downstairs. OR open the door at the top of the stairs and enjoy a 5BR, 3BA home with family room. Beautifully tiled bathrooms, freshly painted large deck, fenced front yard and landscaped back yard, paved driveway, roomy 2-car garage, and a PANORAMIC VIEW complete this fantastic home!

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2206 Tongass Avenue
\$150,000

Gateway Shoe and Vacuum Repair is For Sale. Price includes all inventory, cabinets, fixtures & the condominium it is in. Parking available nearby & great Tongass Avenue location. Wonderful opportunity to be you own boss! (*Hink*)



2409 First Avenue
\$290,000

Very large commercial building in centralized westend location. Storage? Office space? Apartments? Large enough to do whatever...and at a great price !!! (*Richey*)



117 Inman Street
Was ~~\$299,000~~ NOW \$249,000

Price Reduced! Owner says sell now! Will look at all offers. Eight-Plex above Thomas Basin. \$4,250.00 per month in rental income. Bring your toolbox and build your equity! This is a money maker. Call us for details. (*Kroscavage*)



7901-7909 & 7935 N. Tongass Hwy
\$630,000

Heavy Equipment Shop - Features 5 service bays & plenty of parking/storage space outside. Conveniently located on North Tongass Highway. Phase-One environmental study performed on property in 2006. (*Evergreen Timber LP*)

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Commercial **1325 Craig - Klawock Hwy** **Was \$1,200,000**
Thibodeau **Now \$ 999,000**

2 Story Garco Steel Building. Completely finished on both floors as office or retail space. Alaska Court System occupies most of the Main Floor. Excellent location w/ample parking in downtown Craig. Can be adapted to many different applications.



Commercial **312 Front Street** **Was ~~\$1,599,000~~**
Machini **Commercial Building** **NOW \$1,090,000**

Approximately 1100sf on ground floor. Tenant's Lease expires 03/31/10.

2 Efficiency Apts & small office space on second floor. Fixtures belong to Tenant. Building substantially updated & well cared for. Very desirable location for visitor & year 'round commercial activity.

Owner asking \$1,090,000 and Will LISTEN TO OFFERS.



Commercial **#21 Creek Street** **Was \$1,599,000**
Machini **NOW \$1,250,000**

3 Story Commercial Building - **Business not Included**

Approximately 1300 SF of retail space, including small office & storage area. Fixtures to remain w/the building.

Building built in 1993 & well maintained , has coin operated laundry facilities on 3rd floor.

SELLER asking \$1,250,000. Will listen to offers. Will consider lease to own/ owner

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**Commercial
Ellis Building**

1285 Tongass Avenue

**Was \$1,950,000
Now \$1,400,000**

2 Buildings on 39,152 square foot lot. Located on the water, w/leased office & restaurant space, lots of yacht moorage & near berth IV. Well maintained.



Tree Tops Lodge - Thorne Bay

Was \$2,400,000

NOW \$2,250,000

Opportunity abounds with this Wilderness Lodge Package. Located in Thorne Bay, Alaska on Prince of Wales Island. Main lodge has 7 bedrooms and 6 baths, fully furnished including linens. Lounge area has a fireplace that is decorated with leather furniture and wilderness portraits. The kitchen is complete with just about everything you need to cook up a storm, along with a large wooden table that will seat your family and guests. Downstairs enjoy entertaining with a full bar, poker table and hot tub. **The New Lodge** is unfinished at this time. When completed it will host 9 bedrooms with private baths, 2 beds per room with some furnishings. Full entertainment system, fireplace and bar upstairs, downstairs you will find the kitchen area with beautiful wood cabinets. **Floating dock & walkway** are constructed from red and yellow cedar planks with aluminum railings. Built to last!



“Log Cabin Resort & RV Park” | Klawock | AK

Fabry

\$2,600,000

Profitable & fully booked Resort & R.V. Park located in Klawock, on Prince of Wales Island in Southeast Alaska. Completely turn-key right down to the website: www.LogCabinResortandRVpark.com

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COMMERCIAL

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**Commercial
Dadlani**

51 Main Street

\$3,000,000

2 Story building in the Spruce Mill Development which was built in 1996. The Building is fully leased w/Retail on First Floor & Ketchikan Title/Storage Office Space on the Second Floor. It is Handicap Accessible.



**Commercial
Talbots, Inc**

1101 Tongass Avenue

\$3,990,000

One of Ketchikan's Premier Properties — TALBOTS !!!

A Superb opportunity to own the Land, Tidelands, Buildings, easement to access the ramp off of Berth IV and permitting for a floatplane facility. Purchase includes almost an acre of property with a location that cannot be duplicated. It does not include the business or business name. Business available separately at additional cost.

Contact alliance realty for all the information.

Appendix B

2010 Right-of-Way Figures

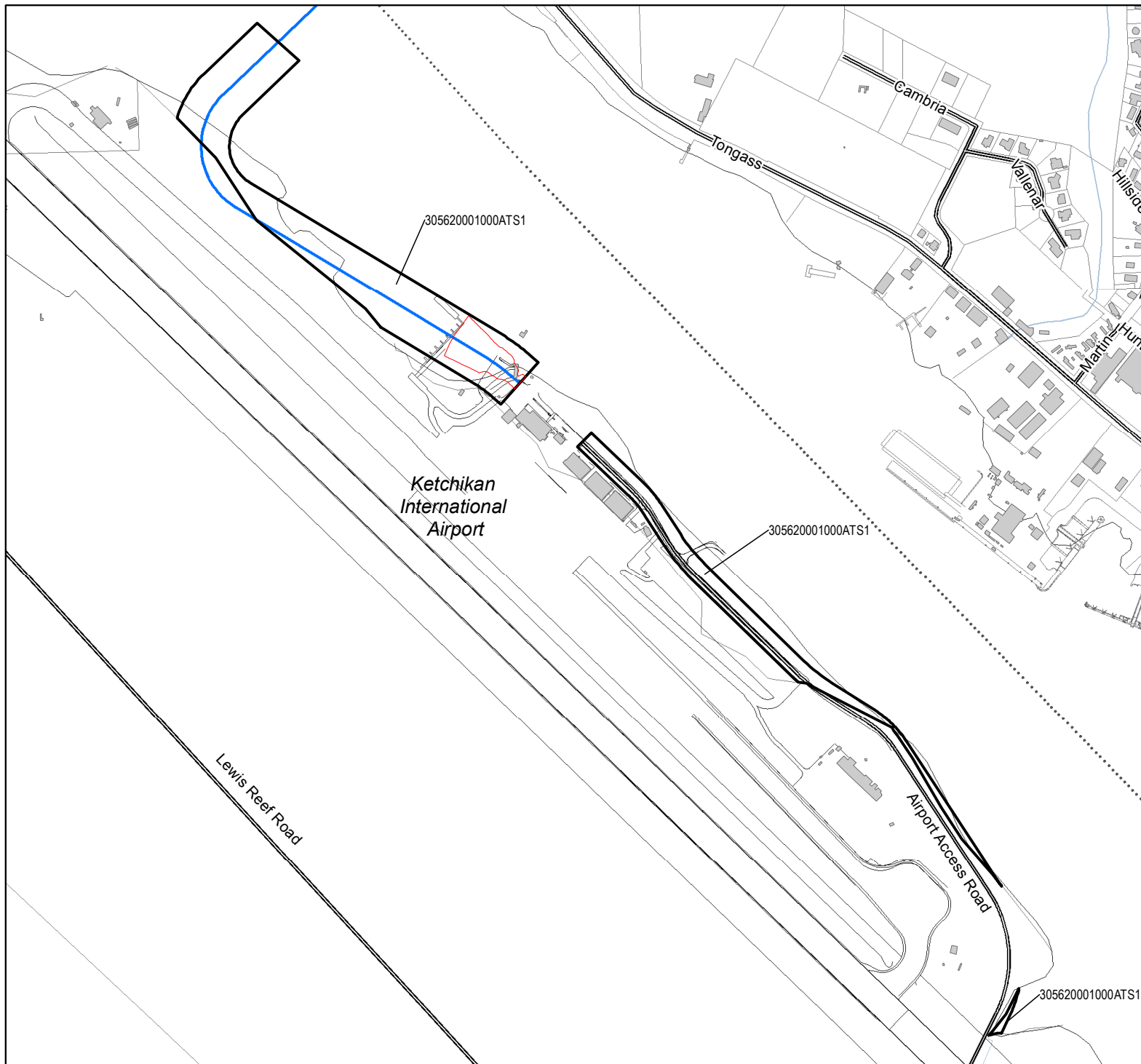
Alternative C3-4 Proposed Right-of-Way: KIA

- C3-4
- Proposed Right-of-way
- Cut and fill
- Parcel boundary
- Buildings

Note: Parcel number shown for affected parcels only. Right-of-way would not need to be obtained on airport property and is therefore not shown. Right-of-way requirements in the vicinity of KIA occur only on state-owned land.



Date: September 16, 2010
Projection: Alaska State Plane Zone 1, NAD 27
Author: HDR Alaska, Inc.
Sources: KGB, HDR Alaska, Inc.



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Alternative C3-4 Proposed Right-of-Way: Revillagegedo

- C3-4
- Proposed Right-of-way
- Cut and fill
- Parcel boundary
- Buildings
- Property Type
 - Residential
 - Commercial

Note: Parcel number shown for affected parcels only.



Date: September 16, 2010
 Projection: Alaska State Plane Zone 1, NAD 27
 Author: HDR Alaska, Inc.
 Sources: KGB, HDR Alaska, Inc.



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Alternative F3 Proposed Right-of-Way: GIH South and Pennock Island

- F3
- Proposed Right-of-way
- Cut and Fill
- Parcel boundary
- Buildings

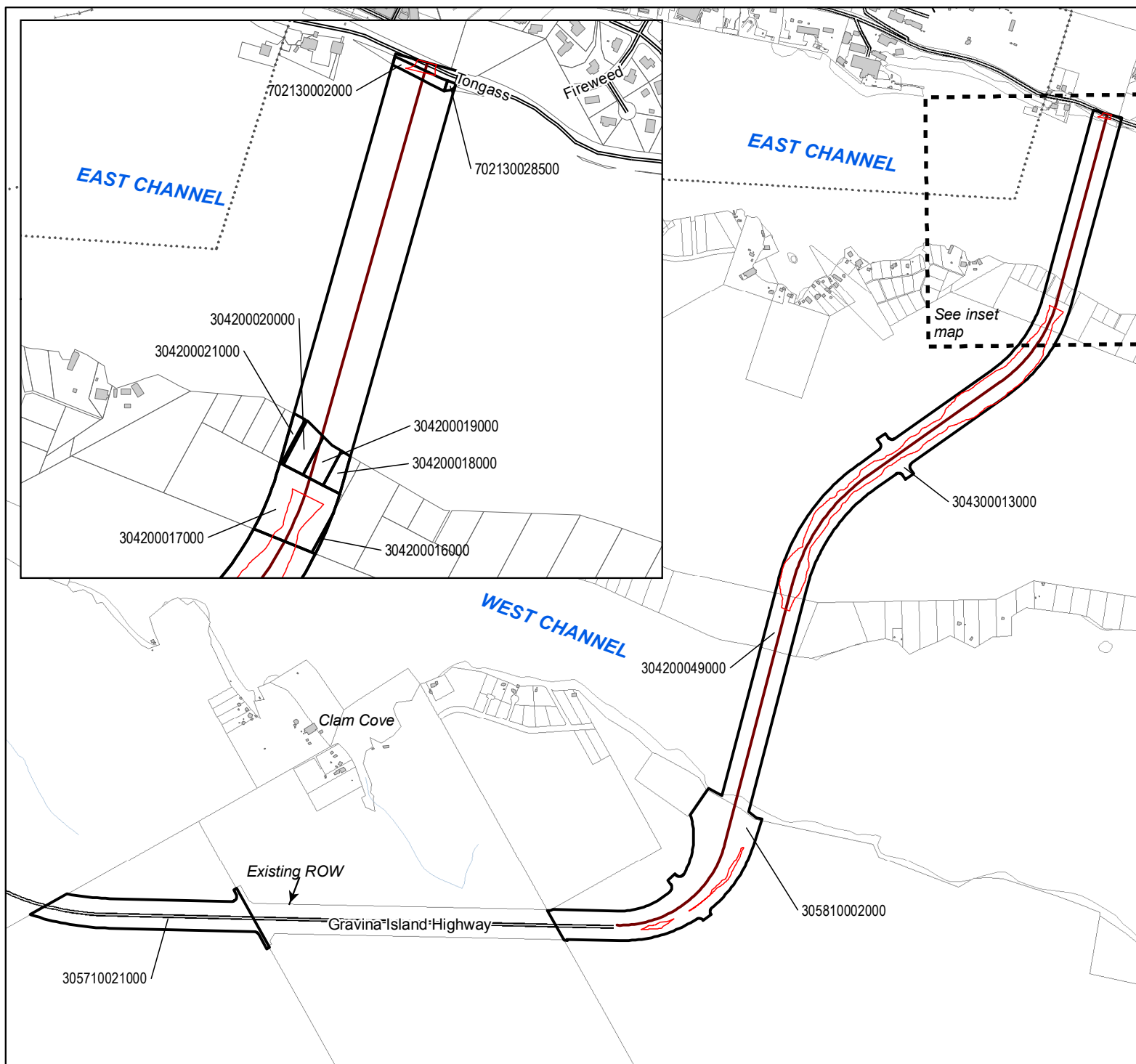
Note: Parcel number shown for affected parcels only. Right-of-way would not need to be obtained on airport property and is therefore not shown.



Date: September 16, 2010
Projection: Alaska State Plane Zone 1, NAD 27
Author: HDR Alaska, Inc.
Sources: KGB, HDR Alaska, Inc.



0 700 1,400
Feet



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Alternative G2 Proposed Right-of-Way: Ferry Terminals

- G2 Ferry Route
- ▭ Proposed Right-of-way
- ▭ Cut and Fill
- ▭ Parcel boundary
- Buildings
- Property Type
- Commercial

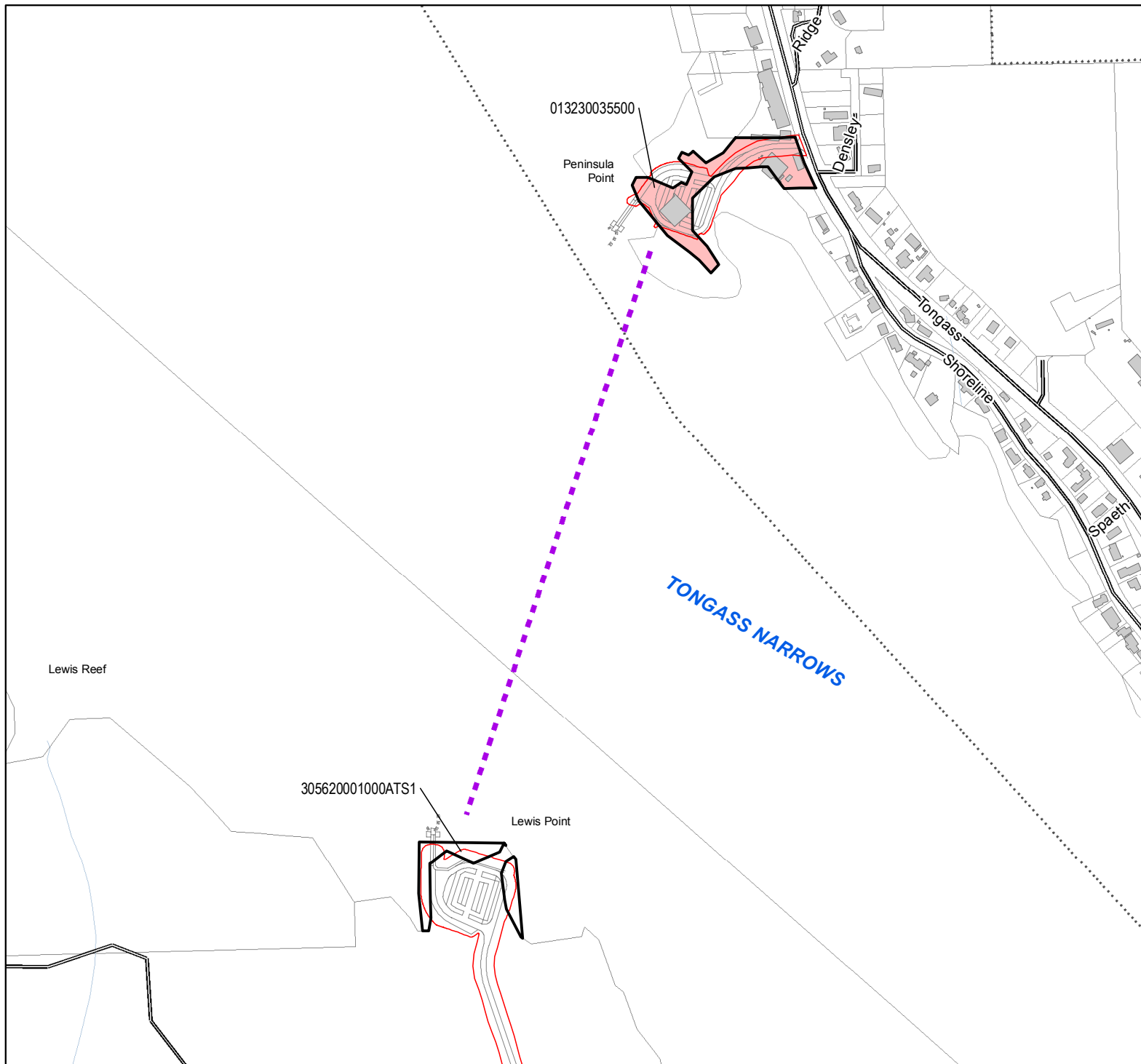
Note: Parcel number shown for affected parcels only. Right-of-way would not need to be obtained on airport property and is therefore not shown.



Date: September 16, 2010
Projection: Alaska State Plane Zone 1, NAD 27
Author: HDR Alaska, Inc.
Sources: KGB, HDR Alaska, Inc.



0 350 700
Feet



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Alternative G3 Proposed Right-of-Way: Ferry Terminals

- G3 Ferry Route
- ▭ Proposed Right-of-way
- ▭ Cut and Fill
- ▭ Parcel boundary
- Buildings
- Property Type
- ▭ Residential/Commercial
- ▭ Commercial

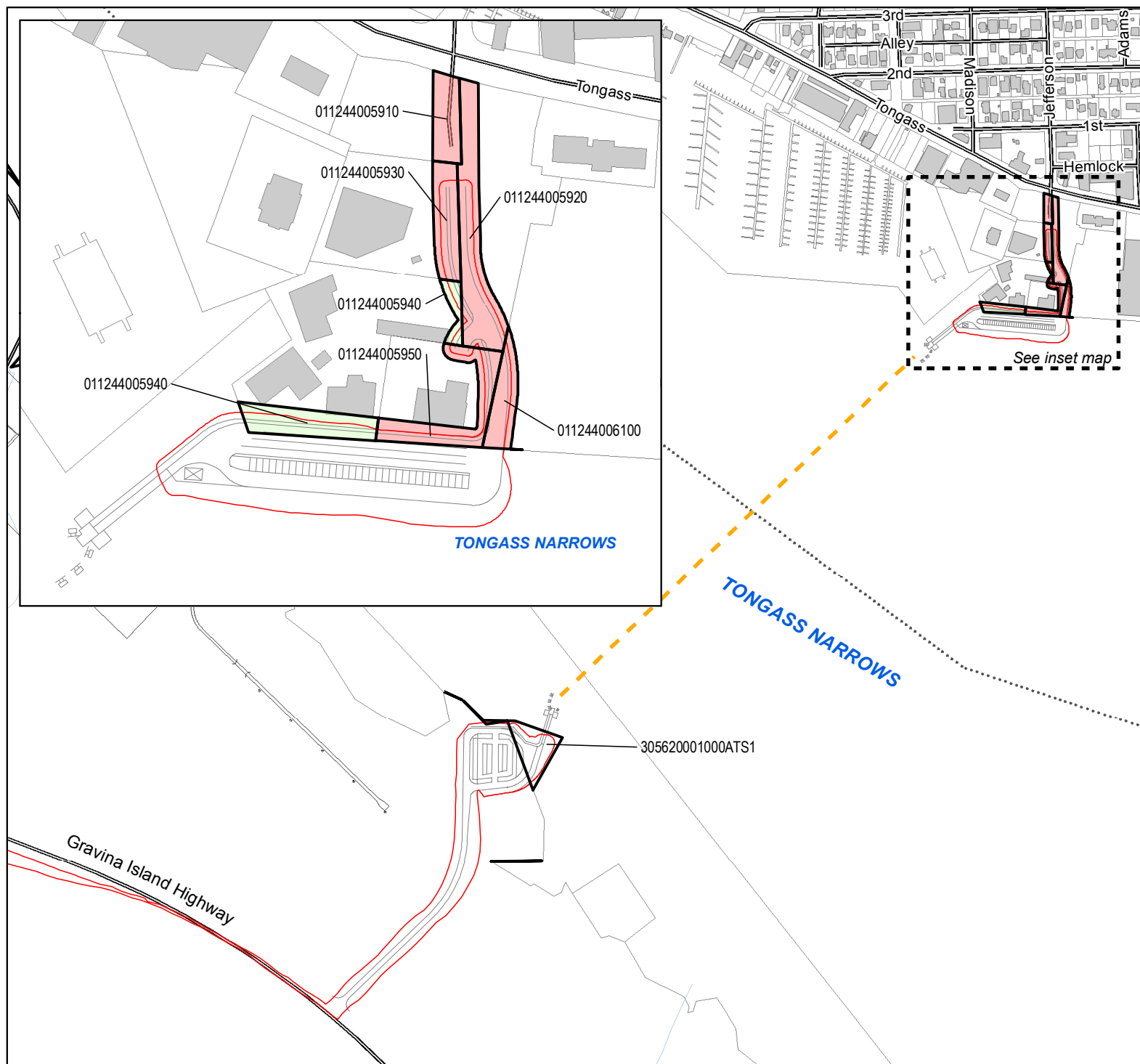
Note: Parcel number shown for affected parcels only. Right-of-way would not need to be obtained on airport property and is therefore not shown.



Date: September 17, 2010
Projection: Alaska State Plane Zone 1, NAD 27
Author: HDR Alaska, Inc.
Sources: KGB, HDR Alaska, Inc.



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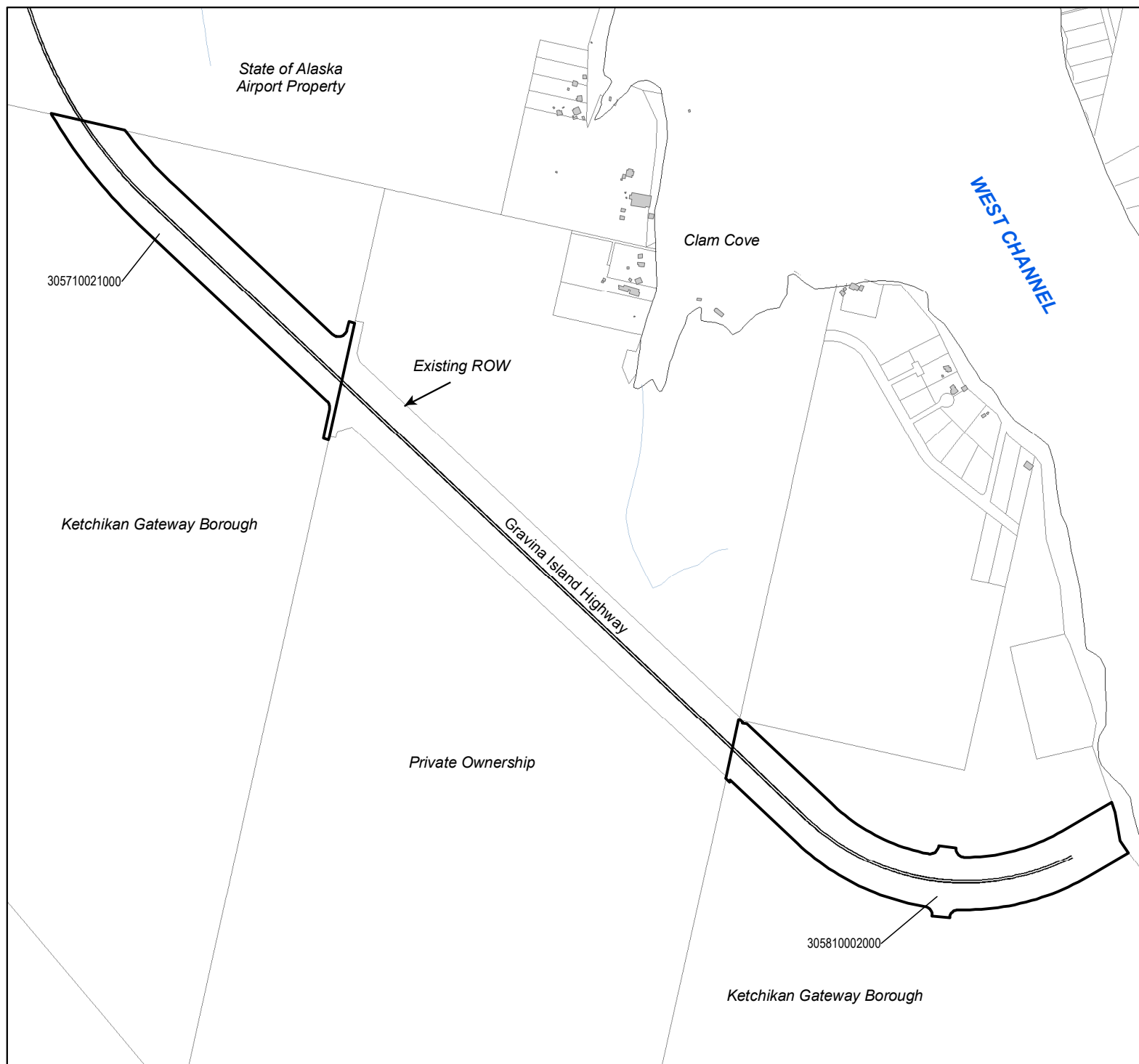


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Alternatives C3-4, G2, G3, and G4 Proposed Right-of-Way: GIH South

- Gravina Island Highway
(common to all
alternatives)
- Proposed Right-of-way
- Parcel boundary
- Buildings

Note: Parcel number shown for affected parcels only. Right-of-way would not need to be obtained on airport property and is therefore not shown.



Date: September 16, 2010
Projection: Alaska State Plane Zone 1, NAD 27
Author: HDR Alaska, Inc.
Sources: KGB, HDR Alaska, Inc.






0 420 840
Feet



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Alternatives F3, G2, G3, and G4 Proposed Right-of-Way: KIA

-  Proposed Right-of-way
-  Parcel boundary
-  Buildings

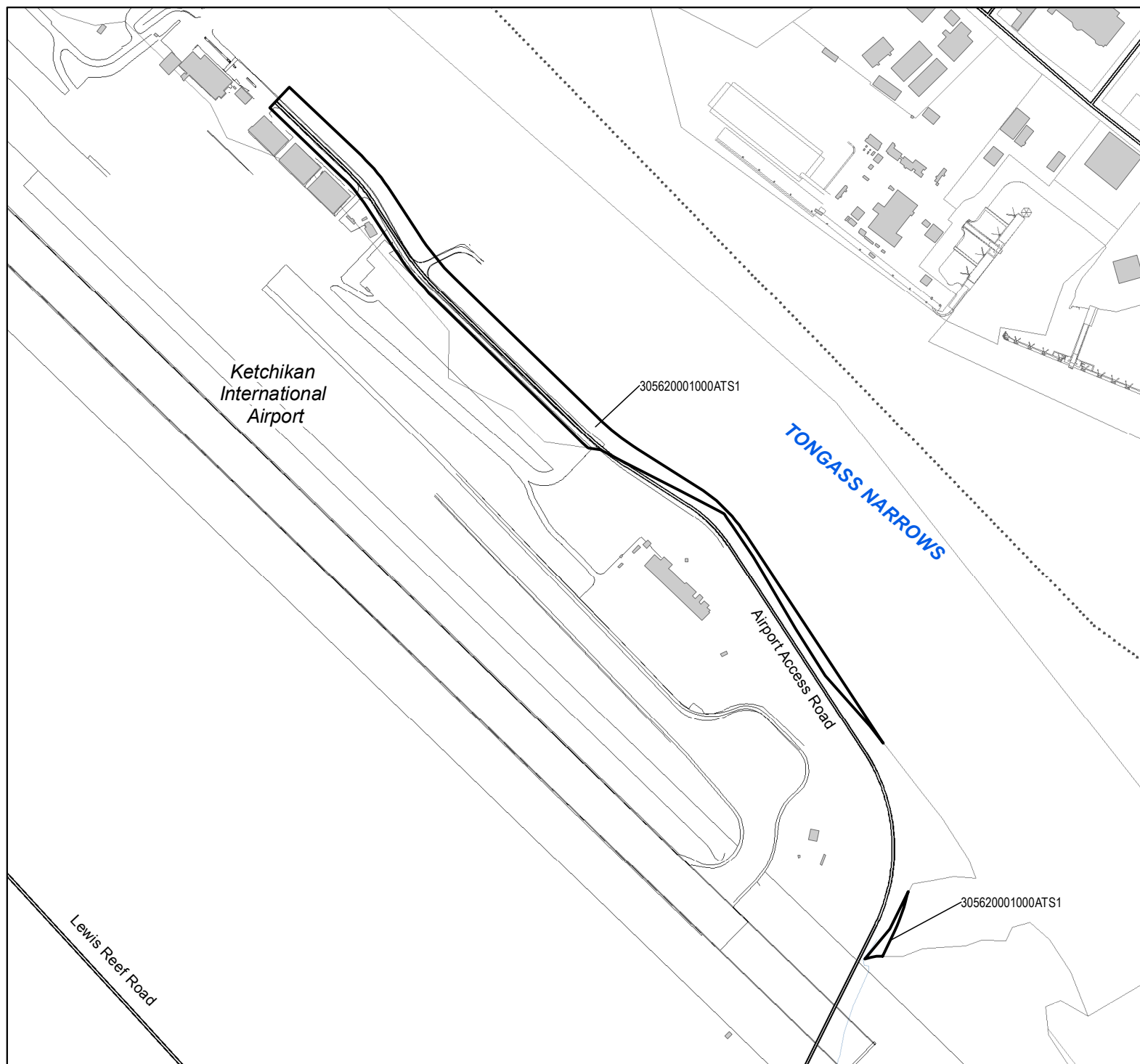
Note: Parcel number shown for affected parcels only. Right-of-way would not need to be obtained on airport property and is therefore not shown. Right-of-way requirements in the vicinity of KIA occur only on state-owned land.



Date: September 16, 2010
Projection: Alaska State Plane Zone 1, NAD 27
Author: HDR Alaska, Inc.
Sources: KGB, HDR Alaska, Inc.



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Feet



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Gravina Access Project

Appendix B – Part 2

Technical Addendum to Conceptual Stage Relocation Study and Assessment of Right-of-Way Acquisition Costs

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Gravina Access Project

Technical Addendum to

the Conceptual Stage Relocation Study and

Assessment of Right-of-Way Acquisition Costs

FINAL



Agreement 36893013
DOT&PF Project 67698
Federal Project ACHP-0922(5)

Prepared for:



State of Alaska
Department of Transportation
and Public Facilities
6860 Glacier Highway
Juneau, Alaska 99801

Prepared by:
HDR Alaska Inc.
2525 C Street Suite 305
Anchorage, AK 99503

September 2012

1. INTRODUCTION

The purpose of this document is to addend the 2010 Gravina Access Project Conceptual Stage Relocation Study and Assessment of Right-of-Way Costs (2010 ROW Report) with new information regarding recent developments adjacent to Alternative C3-4 that would affect right-of-way acquisition. This document also presents updated information on assessed property values of potentially affected private properties within the right-of-way of the build alternatives to verify that the conclusions concerning acquisition costs in the 2010 ROW Report are valid.

The 2010 ROW Report presented detailed right-of-way acquisition costs for all six build alternatives being analyzed in the draft Gravina Access Project Supplement Environmental Impact Statement (SEIS). Proposed right-of-way requirements were developed for each alternative and the controlled-access right-of-way costs were determined by overlaying the right-of-way limits on the Ketchikan Gateway Borough's spatial parcel database and adding their 2010 appraised values. The acquisition value was based on the 2010 borough tax assessment database, the percentage of the parcel acquired, and the value of the appraised improvements on that property that would need to be acquired and removed/demolished, as well as the cost to relocate persons or businesses. An acquisition cost for the market value of the properties affected was estimated for each alternative by applying an inflation of 10 percent (see Section 3 of the 2010 ROW Report).

Recognizing the possibility that changes to properties in the study area could have occurred over a period of approximately two years, The Alaska Department of Transportation and Public Facilities (DOT&PF) identified the need to validate the findings of the 2010 ROW Report. To do this, the 2010 assessed values of private properties potentially affected by the SEIS build alternatives were compared to the 2012 assessed values for those properties. In that process, two properties potentially affected by Alternative C3-4 were identified as having improvements since the 2010 ROW Report was developed that affected their assessed value. No other properties potentially affected by Alternative C3-4 or other Gravina Access Project alternatives indicate changes requiring modification to the right-of-way requirements.

2. UPDATES TO ALTERNATIVE C3-4 RIGHT-OF-WAY REQUIREMENTS

This section addresses the changes in land use and boundary/ownership associated with the two properties potentially affected by Alternative C3-4 since the 2010 ROW Report was developed that affected their assessed value. It also describes the modifications made to right-of-way requirements for Alternative C3-4 as a result of those changes.

2.1 Pioneer Heights Senior Housing

The most significant development in terms of land use change and increase in property value has been the construction of the Pioneer Heights Senior Housing located at 4640 North Tongass Avenue on a previously vacant, 11.4-acre parcel (parcel #013130004100). The facility is a new 10-unit independent living senior housing complex owned by Ketchikan Senior Citizen Services, Inc., located immediately west of the Alternative C3-4 alignment (refer to Figure 1 for a layout

of the new facility and Figure 2 for an exterior elevation profile¹). With the improvement of the housing facility, the 2012 assessed land value for this parcel is approximately 20 percent higher than the 2010 value.

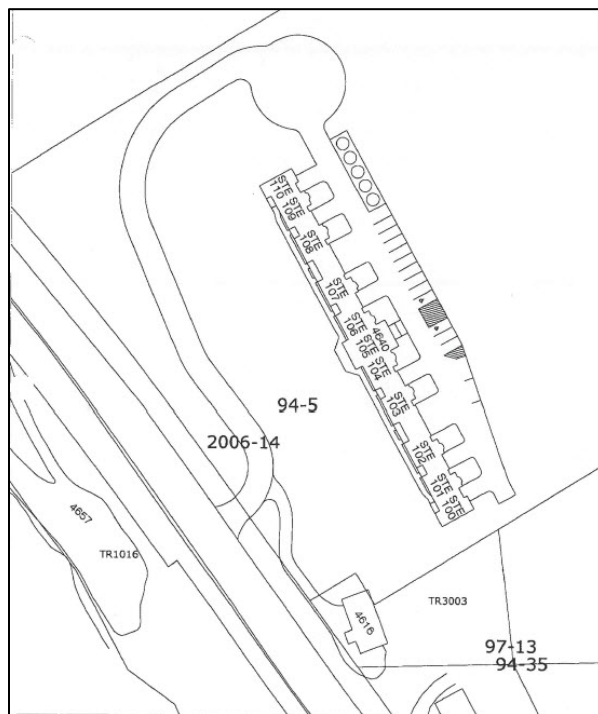


Figure 1. Pioneer Heights Senior Housing: Facility Layout

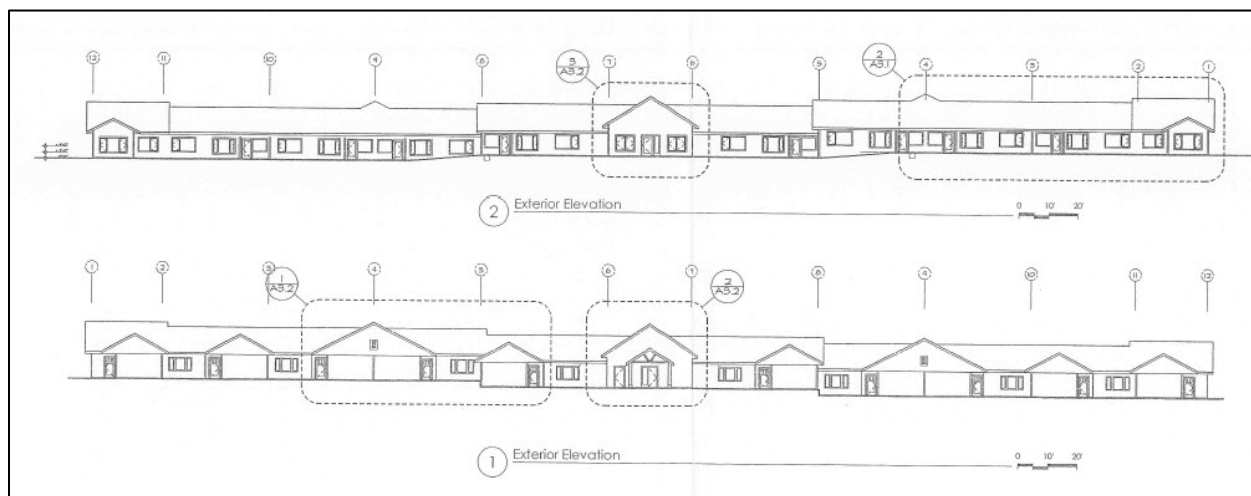


Figure 2. Pioneer Heights Senior Housing: Elevation View

¹ Source: Ketchikan Gateway Borough, building permit application, provided by the Borough Planning Department, April 2, 2012. Figure 2 drawings from Welsh Whitely Architects contained in the building permit application.

The building footprint was georeferenced and digitized in GIS to allow for overlaying with the Alternative C3-4 design information in order to assess potential impacts from the alternative on the building or property. In the 2010 ROW Report, the right-of-way for Alternative C3-4 included land that is now occupied by the new Pioneer Heights Senior Housing building. Project planners and engineers determined the right-of-way boundary for Alternative C3-4 could be modified to avoid impacts to the building while maintaining adequate construction limits.² Figure 3 illustrates the location of Pioneer Heights Senior Housing relative to Alternative C3-4 and the previous (2010) and modified (2012) proposed right-of-way boundaries.

The analysis in the draft 2010 ROW Report anticipated taking approximately 70 percent of the parcel, or about 7.6 acres, at an estimated market value of \$89,655. The modified Alternative C3-4 right-of-way on the Pioneer Heights Senior Housing property now requires taking approximately 51 percent of the parcel, or about 5.8 acres. Using the same inflation rate as the draft 2010 ROW Report (i.e., 10 percent), the estimated market value of property to be acquired is \$82,467.

² Additional impacts (e.g., noise and visual) to the Pioneer Heights Senior Housing will be addressed in the SEIS document.



2.2 Ketchikan Ready Mix & Quarry, Inc. Property

The 2010 ROW Report identified a vacant parcel at the intersection of Misty Marie Lane/Don King Road/Rex Allen Drive (parcel #013240002240) where a partial property acquisition would be required. The property, owned by Ketchikan Ready Mix & Quarry, Inc., was originally 1.6 acres in size (refer to red outline in Figure 4). According to the Borough's 2012 data, this parcel has been developed and subdivided, with the developed portion, a 0.6-acre parcel (now parcel #013240002240), sold to Alaska Power & Telephone Company. Ketchikan Ready Mix & Quarry, Inc., retains the 1-acre parcel (now parcel #013240002250) that is still vacant according to 2012 tax assessment records.



Figure 4. Ketchikan Ready Mix & Quarry, Inc. Property and Alternative C3-4

The analysis in the 2010 ROW Report anticipated taking approximately 35 percent of the combined parcel, or about 0.6 acres, at an estimated market value of \$114,083. With the parcel divided, project planners and engineers determined the right-of-way boundary for Alternative C3-4 could be modified to confine impacts to the undeveloped/vacant parcel owned by Ketchikan Ready Mix & Quarry, Inc., taking approximately 53 percent of that parcel, or about 0.5 acres. Using the same inflation rate as the 2010 ROW Report (i.e., 10 percent), the estimated market value of this acquisition is \$118,000. At present, it is assumed that the remaining 0.5 acre of the parcel is still usable and accessible and a full take (which would cost an estimated \$222,640) would not be required.

3. RIGHT-OF-WAY ACQUISITION COSTS REVIEW: APPRAISED LAND VALUES, 2010 AND 2012

A comparison of appraised values from the Borough tax assessment database for 2010 and 2012 was done for private parcels affected by Alternatives C3-4, F3, and G3. Land required from the State and Borough is expected to be provided to the project at no cost. Alternatives G2 and G4/G4v do not affect private land; therefore, no update of appraised values is needed.

The comparison of appraised land and improvement values for 2010 and 2012 are presented in Table 1. Whereas the right-of-way cost estimates in the 2010 ROW Report factor in the percentage of the parcel affected and apply a market inflation value, the table below compares only the unmodified acquisition value for the entire parcel. Table 1 demonstrates the current value of land has changed slightly from 2010, as seen by the approximately 1 percent negative change in appraised land values for Alternatives C3-4 and G3 and approximately 4 percent positive change for Alternative F3. The significant percentage change in improvement values for Alternative C3-4 is due to the construction of the Pioneer Heights Senior Housing, which has an appraised improvement value of \$1.2 million.

Table 1. Percent change in private parcel values, 2010 to 2012.

Alternative	2010		2012		% change in appraised land value, 2010 to 2012	% change in appraised improvement values, 2010 to 2012
	Appraised Land	Appraised Improvements	Appraised Land	Appraised Improvements		
Alt C3-4	\$3,543,800	\$2,605,000	\$3,501,600	\$3,806,600	-1.21%	31.57%
Alt F3	\$259,100	\$0	\$270,200	\$0	4.11%	0.00%
Alt G3	\$6,086,200	\$7,751,200	\$6,012,200	\$7,751,200	-1.23%	0.00%

4. CONCLUSION

The recent changes in land use and assessed property values, particularly for properties adjacent Alternative C3-4, have not resulted in significant increases in cost for right-of-way acquisition for any of the Gravina Access Project build alternatives. While some new development has occurred in the project area since 2010, overall property values have seen little change and in some instances a decrease in value. It is the view of the Gravina Access Project team that

preliminary right-of-way cost estimates developed in 2010 are still valid based on the information presented above. Furthermore, no additional relocations will be required beyond what is reported in the 2010 ROW Report.

Gravina Access Project

Appendix C FHWA Determination of No Hazard to Air Navigation

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Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AAL-147-OE

Issued Date: 07/10/2009

Jim Lowell, PE
Alaska Dept of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Bridge Nearest Point - Alignment C 3-4
Location:	Ketchikan, AK
Latitude:	55-21-36.89N NAD 83
Longitude:	131-43-03.21W
Heights:	142 feet above ground level (AGL) 159 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

☐ At least 10 days prior to start of construction (7460-2, Part I)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

See attachment for additional condition(s) or information.

This determination expires on 01/10/2011 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before August 09, 2009. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted in triplicate to the Manager, Airspace and Rules Division - Room 423, Federal Aviation Administration, 800 Independence Ave., Washington, D.C. 20591.

This determination becomes final on August 19, 2009 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Office of Airspace and Rules via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact Robert van Haastert, at (907)271-5863. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AAL-147-OE.

Signature Control No: 631414-116063639

(DNH)

Kevin P. Haggerty
Manager, Obstruction Evaluation Service

Attachment(s)
Additional Information
Map(s)

NARRATIVE AERONAUTICAL STUDY NO. 2009-AAL-147-148-149-OE

Abbreviations

AGL - above ground level

MSL - mean sea level

RWY - runway

IFR - instrument flight rules

VFR - visual flight rules

nm - nautical mile

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposal identifies three points of the proposed Ketchikan International Airport (KTN) access road and bridge. 2009-AAL-147-OE is on Gravina Island near KTN, 2009-AAL-148-OE is near the midpoint of the bridge in the Tongass Narrows, and 2009-AAL-149-OE is on the mainland, located northwest of Ketchikan, AK. KTN elevation: 89 feet MSL.

2009-AAL-147-OE, 142 feet AGL, 159 feet MSL, 1,372 feet from KTN RWY 11 threshold.

2009-AAL-148-OE, 265 feet AGL, 265 feet MSL, 2,196 feet from KTN RWY 11 threshold.

2009-AAL-149-OE, 0 feet AGL, 283 feet MSL, 3,516 feet from KTN RWY 11 threshold.

2. OBSTRUCTION STANDARDS EXCEEDED

The proposed bridge and access road points are identified as obstructions under these two Part 77 standards:

1) Section 77.25(a) -- The surface of a takeoff and landing area of an airport or any imaginary surface established under 77.23, 77.25, or 77.29. Two points would exceed the VFR maneuvering areas for Category A and Category B aircraft (horizontal surface) at KTN:

2009-AAL-148-OE, would exceed the KTN horizontal surface by 26 feet, and

2009-AAL-149-OE, would exceed the KTN horizontal surface by 44 feet.

2) Section 77.25(e) -- The transitional surface area designated to prevent tall structures from being located at the edge of the primary and approach surfaces of an airport established under 77.23, 77.25, or 77.29.

2009-AAL-147-OE, would exceed the KTN RWY 11 transitional surfaces by 59 feet.

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR follows:

Adverse Impact - The proposed bridge and access road would exceed the Part 77 horizontal surface by 44 feet and exceed the KTN RWY 11 transitional surface by 59 feet. Proposed bridge and access road would be located approximately 12,645 feet northwest of the Ketchikan Harbor (5KE) Seaplane Base. The Revilla Corridor Operation and Letter of Agreement will be adversely impacted.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR follows: None.

c. The impact on all planned public-use airports and aeronautical facilities follow: None.

d. The cumulative impact resulting from the proposed construction or alteration of a structure when combined with the impact of other existing or proposed structures follows: None.

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was circulated for public comment on 29 May 2009 and no comments were received by 10 July 2009.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the structure would not have a substantial adverse effect on the safe and efficient use of navigable airspace by aircraft.

6. BASIS FOR DECISION

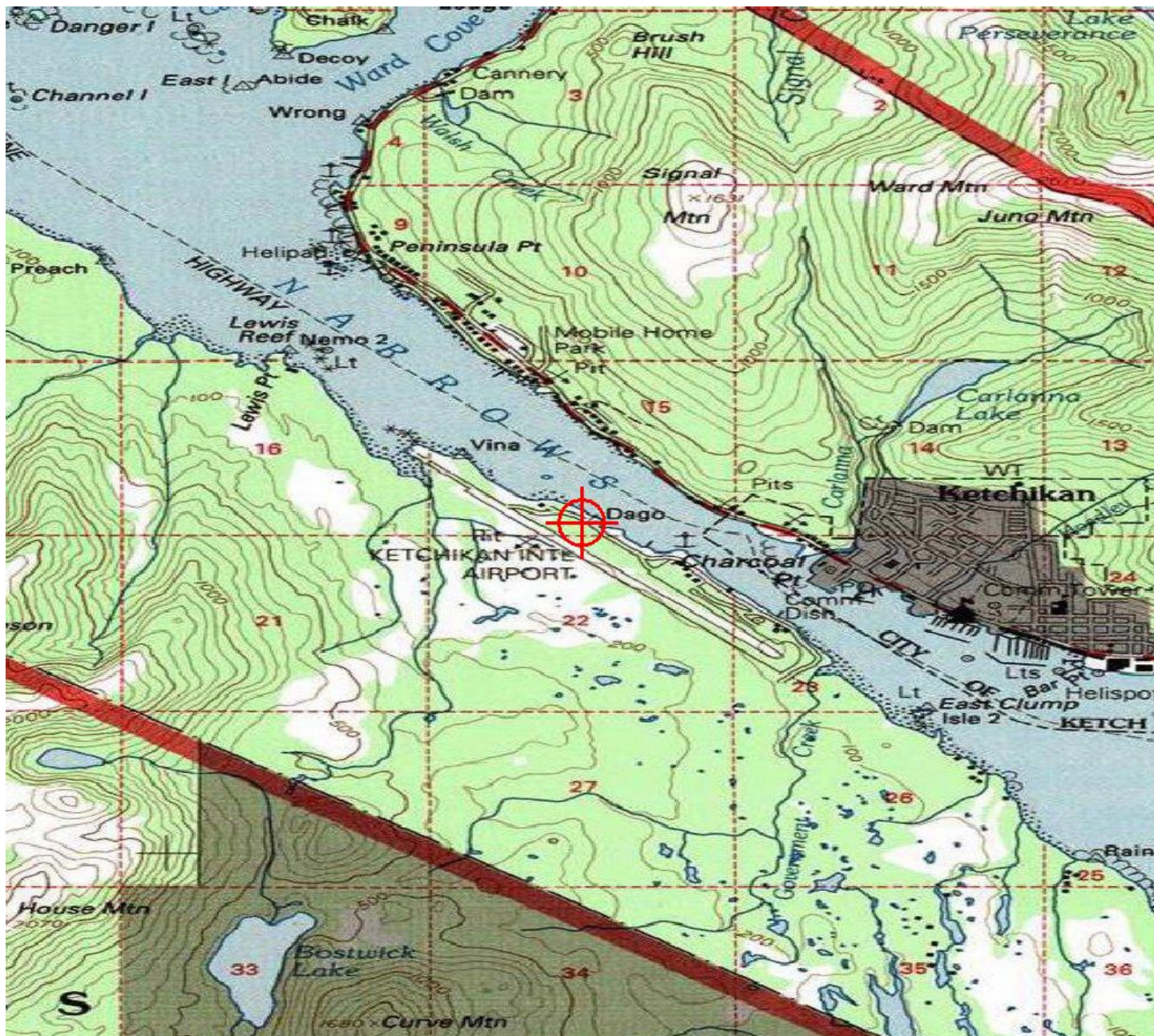
The proposed antenna would exceed the KTN Part 77 horizontal surfaces by 44 feet, exceed the transitional surface by 59 feet, and the Revilla Corridor Operation and Letter of Agreement will be adversely impacted, however, there are no IFR effects and no objections to the identified Special VFR effects were raised. The incorporation of obstruction marking and lighting will mitigate the Part 77 penetrations and provide the necessary pilot conspicuity.

7. CONDITIONS

The structure shall be marked and lighted as outlined in chapters 4, 5, and 12, of Advisory Circular AC 70/7460-1K. The advisory circular is available online at https://oeaaa.faa.gov/oeaaa/external/content/AC70_7460_1K.pdf. It is also free of charge, from the Department of Transportation, Subsequent Distribution Section, M-494.3, 400 7th Street, SW, Washington, DC 20590.

Within five days after the structure reaches its greatest height, proponent is required to file a FAA form 7460-2, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This Actual Construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the National Aeronautical Charting Group (NACG) to map the structure on aeronautical charts and update the national obstruction database.

-x-







Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AAL-148-OE

Issued Date: 07/10/2009

Jim Lowell, PE
Alaska Dept of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Bridge Mid-Point Alignment C3-4
Location:	Ketchikan, AK
Latitude:	55-21-48.76N NAD 83
Longitude:	131-42-50.26W
Heights:	265 feet above ground level (AGL) 265 feet above mean sea level (AMSL)

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Signature Control No: 631415-116063638

(DNH)

Kevin P. Haggerty
Manager, Obstruction Evaluation Service

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Additional Information
Map(s)

NARRATIVE AERONAUTICAL STUDY NO. 2009-AAL-147-148-149-OE

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a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR follows:

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b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR follows: None.

c. The impact on all planned public-use airports and aeronautical facilities follow: None.

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4. CIRCULATION AND COMMENTS RECEIVED

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5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

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6. BASIS FOR DECISION

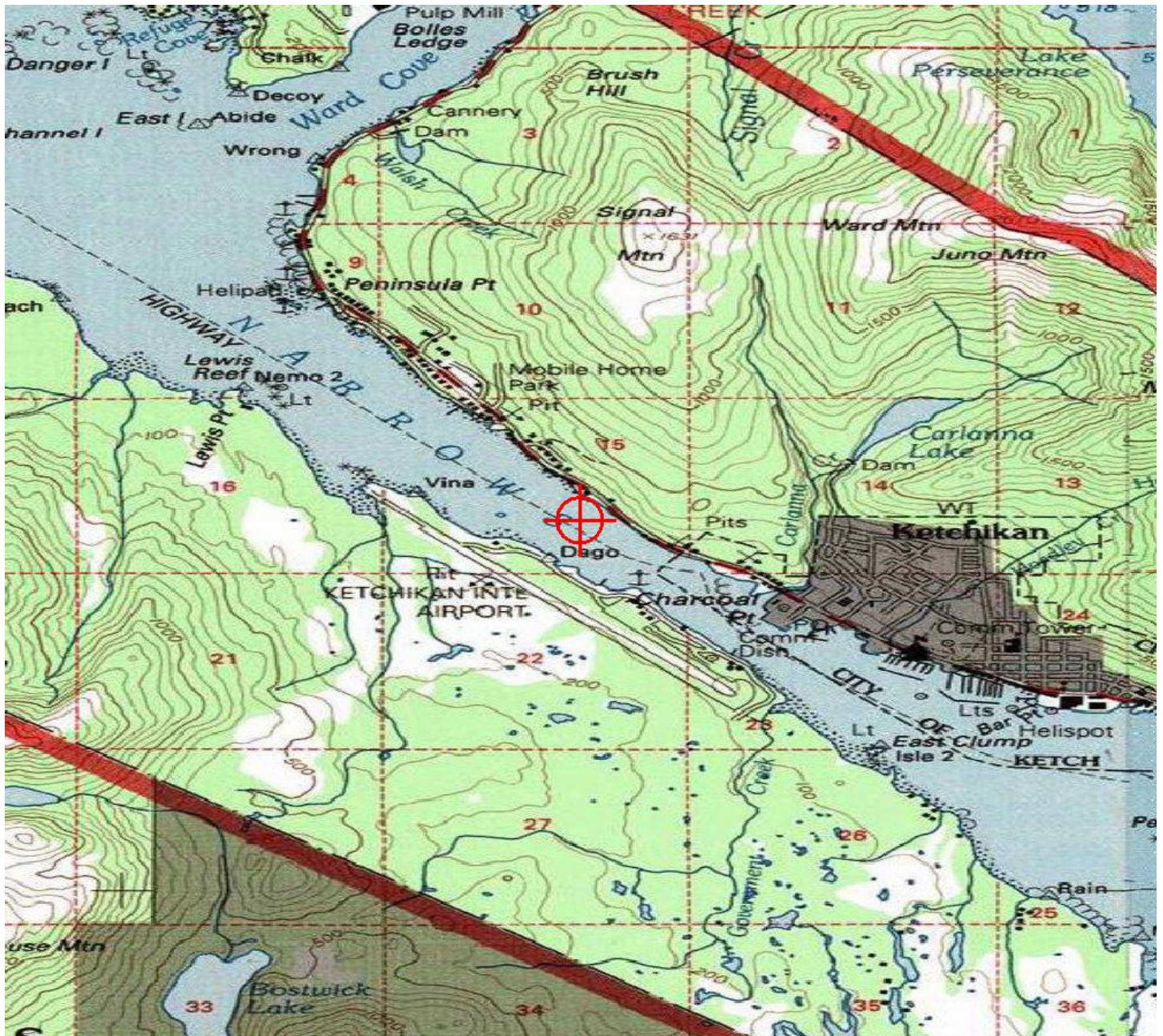
The proposed antenna would exceed the KTN Part 77 horizontal surfaces by 44 feet, exceed the transitional surface by 59 feet, and the Revilla Corridor Operation and Letter of Agreement will be adversely impacted, however, there are no IFR effects and no objections to the identified Special VFR effects were raised. The incorporation of obstruction marking and lighting will mitigate the Part 77 penetrations and provide the necessary pilot conspicuity.

7. CONDITIONS

The structure shall be marked and lighted as outlined in chapters 4, 5, and 12, of Advisory Circular AC 70/7460-1K. The advisory circular is available online at https://oeaaa.faa.gov/oeaaa/external/content/AC70_7460_1K.pdf. It is also free of charge, from the Department of Transportation, Subsequent Distribution Section, M-494.3, 400 7th Street, SW, Washington, DC 20590.

Within five days after the structure reaches its greatest height, proponent is required to file a FAA form 7460-2, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This Actual Construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the National Aeronautical Charting Group (NACG) to map the structure on aeronautical charts and update the national obstruction database.

-x-







Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AAL-149-OE

Issued Date: 07/10/2009

Jim Lowell, PE
Alaska Dept of Transportation and Public Facilities
6860 Glacier Highway
Juneau, AK 99801

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Bridge Access Road Alignment C 3-4
Location:	Ketchikan, AK
Latitude:	55-21-57.86N NAD 83
Longitude:	131-42-32.55W
Heights:	0 feet above ground level (AGL) 283 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

____ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

See attachment for additional condition(s) or information.

This determination expires on 01/10/2011 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before August 09, 2009. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted in triplicate to the Manager, Airspace and Rules Division - Room 423, Federal Aviation Administration, 800 Independence Ave., Washington, D.C. 20591.

This determination becomes final on August 19, 2009 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Office of Airspace and Rules via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact Robert van Haastert, at (907)271-5863. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AAL-149-OE.

Signature Control No: 631416-116063640

(DNH)

Kevin P. Haggerty
Manager, Obstruction Evaluation Service

Attachment(s)
Additional Information
Map(s)

NARRATIVE AERONAUTICAL STUDY NO. 2009-AAL-147-148-149-OE

Abbreviations

AGL - above ground level

MSL - mean sea level

RWY - runway

IFR - instrument flight rules

VFR - visual flight rules

nm - nautical mile

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposal identifies three points of the proposed Ketchikan International Airport (KTN) access road and bridge. 2009-AAL-147-OE is on Gravina Island near KTN, 2009-AAL-148-OE is near the midpoint of the bridge in the Tongass Narrows, and 2009-AAL-149-OE is on the mainland, located northwest of Ketchikan, AK. KTN elevation: 89 feet MSL.

2009-AAL-147-OE, 142 feet AGL, 159 feet MSL, 1,372 feet from KTN RWY 11 threshold.

2009-AAL-148-OE, 265 feet AGL, 265 feet MSL, 2,196 feet from KTN RWY 11 threshold.

2009-AAL-149-OE, 0 feet AGL, 283 feet MSL, 3,516 feet from KTN RWY 11 threshold.

2. OBSTRUCTION STANDARDS EXCEEDED

The proposed bridge and access road points are identified as obstructions under these two Part 77 standards:

1) Section 77.25(a) -- The surface of a takeoff and landing area of an airport or any imaginary surface established under 77.23, 77.25, or 77.29. Two points would exceed the VFR maneuvering areas for Category A and Category B aircraft (horizontal surface) at KTN:

2009-AAL-148-OE, would exceed the KTN horizontal surface by 26 feet, and

2009-AAL-149-OE, would exceed the KTN horizontal surface by 44 feet.

2) Section 77.25(e) -- The transitional surface area designated to prevent tall structures from being located at the edge of the primary and approach surfaces of an airport established under 77.23, 77.25, or 77.29.

2009-AAL-147-OE, would exceed the KTN RWY 11 transitional surfaces by 59 feet.

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR follows:

Adverse Impact - The proposed bridge and access road would exceed the Part 77 horizontal surface by 44 feet and exceed the KTN RWY 11 transitional surface by 59 feet. Proposed bridge and access road would be located approximately 12,645 feet northwest of the Ketchikan Harbor (5KE) Seaplane Base. The Revilla Corridor Operation and Letter of Agreement will be adversely impacted.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR follows: None.

c. The impact on all planned public-use airports and aeronautical facilities follow: None.

d. The cumulative impact resulting from the proposed construction or alteration of a structure when combined with the impact of other existing or proposed structures follows: None.

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was circulated for public comment on 29 May 2009 and no comments were received by 10 July 2009.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the structure would not have a substantial adverse effect on the safe and efficient use of navigable airspace by aircraft.

6. BASIS FOR DECISION

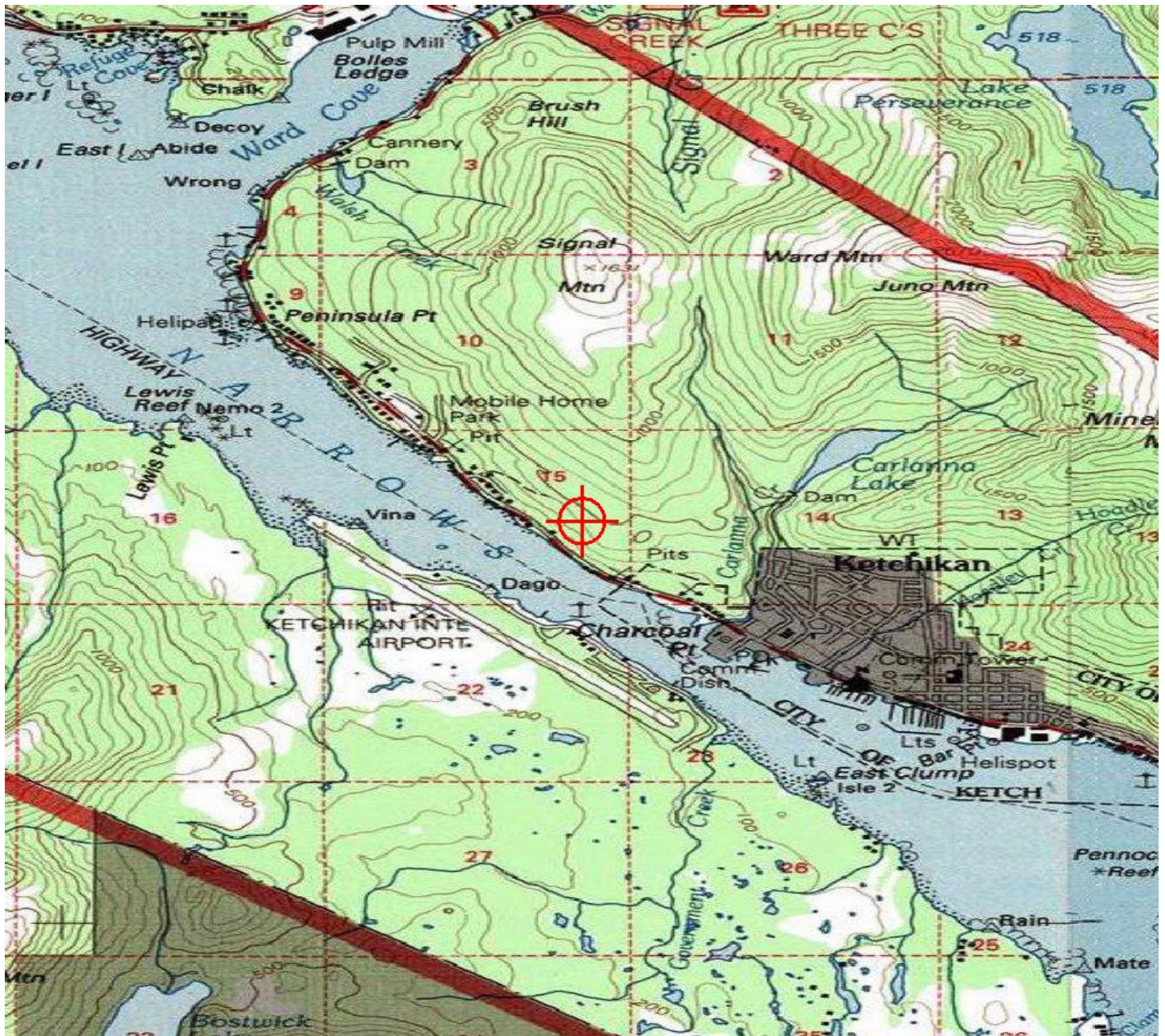
The proposed antenna would exceed the KTN Part 77 horizontal surfaces by 44 feet, exceed the transitional surface by 59 feet, and the Revilla Corridor Operation and Letter of Agreement will be adversely impacted, however, there are no IFR effects and no objections to the identified Special VFR effects were raised. The incorporation of obstruction marking and lighting will mitigate the Part 77 penetrations and provide the necessary pilot conspicuity.

7. CONDITIONS

The structure shall be marked and lighted as outlined in chapters 4, 5, and 12, of Advisory Circular AC 70/7460-1K. The advisory circular is available online at https://oeaaa.faa.gov/oeaaa/external/content/AC70_7460_1K.pdf. It is also free of charge, from the Department of Transportation, Subsequent Distribution Section, M-494.3, 400 7th Street, SW, Washington, DC 20590.

Within five days after the structure reaches its greatest height, proponent is required to file a FAA form 7460-2, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This Actual Construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the National Aeronautical Charting Group (NACG) to map the structure on aeronautical charts and update the national obstruction database.

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Gravina Access Project

Appendix D

ADEC Letter to FHWA on Air Quality Conformity Analysis

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STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF AIR QUALITY

AIR NON-POINT & MOBILE SOURCES

SARAH PALIN, GOVERNOR

619 E. Ship Creek Ave., Suite 249

Anchorage, AK 99501

PHONE: (907) 269-7698

FAX: (907) 269-7508

<http://www.state.ak.us/dec/>

May 18, 2009

Mike Vanderhoof
FHWA Alaska Division
709 West 9th Street, Room 851
Juneau, AK 99802-1648

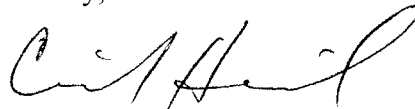
Dear Mr. Vanderhoof:

This letter is in regards to your proposed transportation project entitled Gravina Access Project, where the Alaska Department of Transportation and Public Facilities (ADOT&PF) is proposing to improve access between Revillagigedo and Gravina Island. This project is not currently in a nonattainment area or maintenance area for air quality control under the Clean Air Act. Therefore, projects receiving federal funds or approvals do not require a conformity analysis under Transportation Conformity regulations.

However, particular attention should be given during any future construction activities to take reasonable precaution per 18 AAC 50.045(d) to prevent fugitive dust.

Thank you for contacting us about your project. If you have further questions or concerns about air quality issues, you may contact me at (907) 269-7579 or by e-mail at cindy.heil@alaska.gov.

Sincerely,



Cindy Heil
Section Manager Mobile Sources
Acting Manager ANPMS

Attachments: Conformity request form, map

cc: Jim Lowell, ADOT&PF w/attachments

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DEC Air Quality Conformity Request Form

Project Located Outside of Nonattainment/Maintenance Area

- Location of the Project:

Name	Gravina Access Project
Address	Ketchikan, Alaska
Lat/Long Coordinates ¹	55.3581 N, -131.7188 W, (approximate location of Ketchikan Airport)
Size (acres)	Approximately 6,700 acres for entire Project Area (includes portions of Gravina and Revillagigedo Islands)

- Type of Project / Project description:

This is a transportation project sponsored by ADOT&PF, in cooperation with FHWA, intended on improving public access between Revillagigedo Island and Gravina Island. This air quality conformity request is for documentation purposes for the supplemental EIS that is currently being prepared.

- Is the project located inside of a nonattainment or maintenance area?

☐ Yes
☒ No

If no, explain how you reached that conclusion.²

The Ketchikan area is rural by nature. Per the ADEC website, the project area is not listed within or near any "affected communities."

- Define the period of performance that can be foreseen.

State Date	May 8, 2009
Construction Period	Unknown. To follow a Record of Decision and funding acquisition.
Operation Start Date	Unknown.

- Contact information for responsible federal manager requesting.

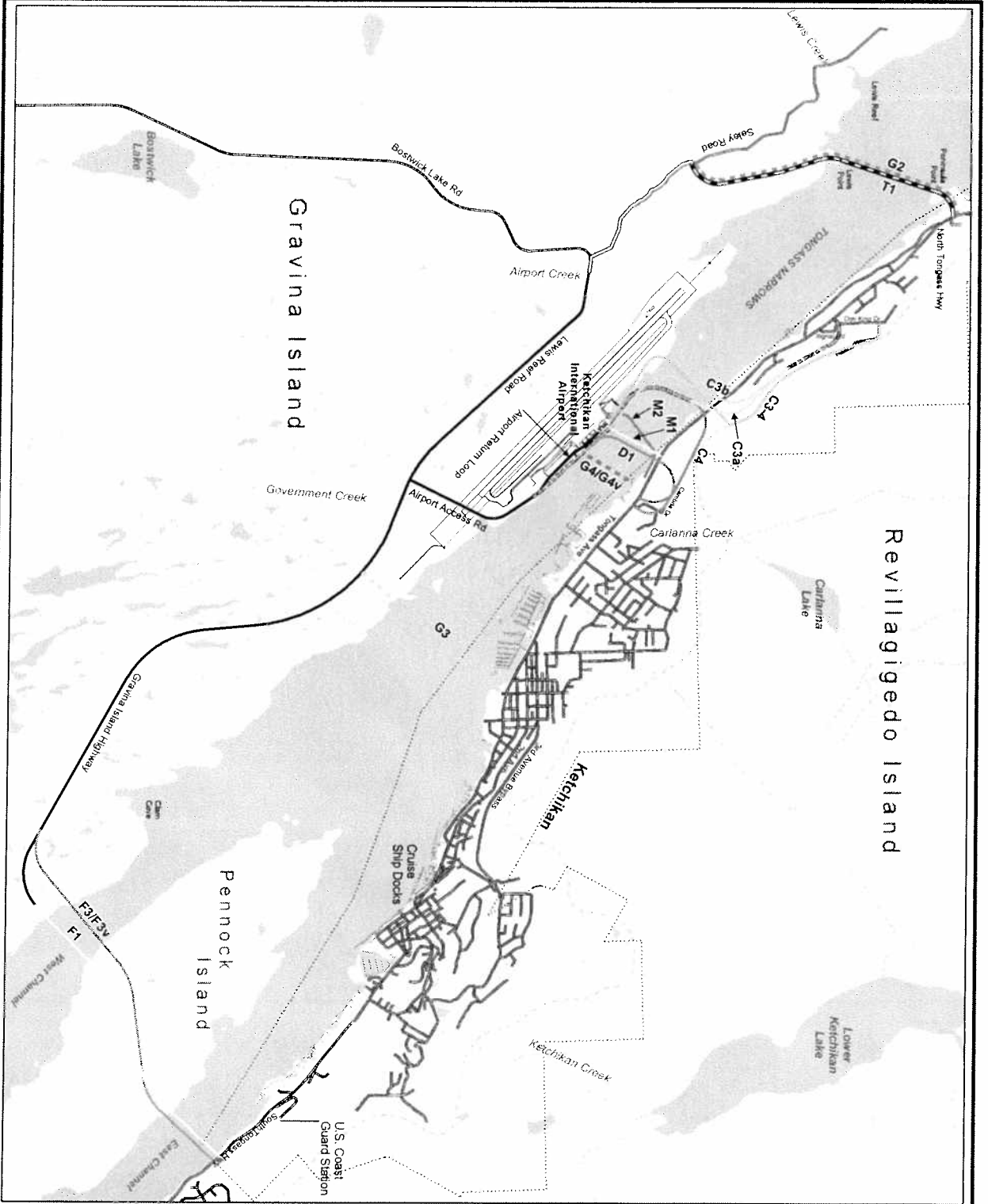
Name	Mike Vanderhoof
Agency	FHWA Alaska Division
Address	709 West 9th Street, Room 851 Juneau, AK 99802-1648
Phone No.	907-586-7418
Email Address	michael.vanderhoof@dot.gov

If more than one agency is responsible for the project, provide contact information for other managers below.

Name	Jim Lowell
Agency	Alaska Department of Transportation and Public Facilities
Address	6860 Glacier Highway, P.O. Box 112506, Juneau, AK 99811-2506
Phone No.	907-465-8884
Email Address	jim.lowell@alaska.gov

¹ For projects located near nonattainment / maintenance areas provide a map/diagram displaying the location of the property relative to the nonattainment / maintenance boundary.

² This response is relevant for projects located near nonattainment / maintenance areas.



Reasonable Alternatives Evaluated in the FEIS and Recent Gravina Island Developments

recently constructed roads common to multiple alternatives
road constructed independent of FEIS

Bridge Alternatives:

C3a	(200' x 550')
C3b	(120' x 500')
C4	(200' x 550')
C3-4	(200' x 550')
D1	(120' x 550')
F1	WEST (120' x 500')
	EAST (200' x 550')
F3/F3v	EAST (200' x 550')
M1	(20' to 200' x 550')
M2	(60' to 200' x 550')

multiple alignments

Ferry Alternatives:

- G2**
- G3

Tunnel Alternative:

- T1 (3200' tunnel)

Bypass Road (proposed)

docks

existing road

city boundary

stream

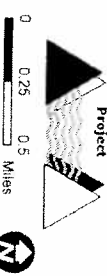
* Dimensions listed refer to bridge navigation opening (vertical x horizontal)
** G2 connection slightly modified from FEIS



Date: January 26, 2009
Project: Gravina Island Road
Author: HDR Alaska, Inc.
Source: KCB, HDR Alaska, Inc.

The information displayed here is for planning purposes only. Based on the information provided, it is not possible to determine the accuracy of the data from various federal, state, public, and private sources. These drawings are for review purposes only and are not intended for use as a security permit or for construction purposes.

Gravina Access Project



Gravina Access Project

Appendix E Essential Fish Habitat and Endangered Species Act Consultation

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Gravina Access Project

Appendix E - Part 1 Essential Fish Habitat Consultation

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U.S. Department
of Transportation
**Federal Highway
Administration**

Alaska Division

March 14, 2013

P.O. Box 21648
Juneau, AK 99802-1648
(907) 586-7418
(907) 586-7420
www.fhwa.dot.gov/akdiv

In Reply Refer To:
ACHP-922(5)/67698

Ms. Linda Shaw
Habitat Biologist
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802

Dear Ms. Shaw:

The Federal Highway Administration (FHWA), in cooperation with the Department of Transportation and Public Facilities (DOT&PF), is preparing a Supplemental Environmental Impact Statement (SEIS) for the Gravina Access Project near Ketchikan, Alaska.

In July 2004, FHWA and DOT&PF issued a Final Environmental Impact Statement (FEIS) for the Gravina Access Project. FHWA issued a Record of Decision (ROD) on September 15, 2004, and identified Alternative F1 as the Selected Alternative. Alternative F1 includes bridges across Tongass Narrows at Pennock Island and a roadway link to the airport on Gravina Island. Following completion of the EIS and permitting, the DOT&PF moved forward with the first phase of implementing Alternative F1: construction of the Gravina Island Highway, which was completed in 2008.

On September 21, 2007, Alaska Governor Sarah Palin directed the DOT&PF to look for a lower cost alternative for access to the airport and Gravina Island. On July 2, 2008, FHWA issued a notice of intent to re-examine alternatives in an SEIS and identify and select a new preferred alternative.

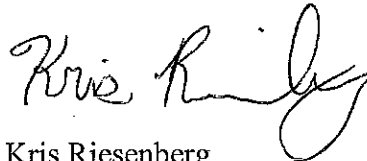
As part of the FEIS process, FHWA and DOT&PF consulted with the National Marine Fisheries Service (NMFS) on Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation Management Act (Magnuson-Stevens Act). In 2004, an EFH Assessment including negotiated conservation recommendations was included with the FEIS. These conservation recommendations were included in the ROD and concluded the EFH consultation process.

The attached report is an addendum to the 2004 EFH Assessment. The EFH Addendum provides updates to baseline conditions where appropriate, descriptions of project alternatives and potential impacts, and other changes from the 2004 EFH Assessment. Conservation measures to avoid and minimize potential project effects are also described.

We would appreciate your comments on the EFH Addendum and any additional recommendations or conservation measures you may have at this time. Note that the FHWA and DOT&PF have not identified a preferred alternative; therefore, the conservation measures in this addendum are general measures to be included in the Draft SEIS that is expected to be released in late spring 2013. The conservation measures will be modified in the Final SEIS to specifically address details of the preferred alternative through further coordination with the agencies during final design.

Please submit your written response via mail to Kris Riesenber, NEPA, Project Manager, Federal Highway Administration, P.O. Box 21648, Juneau, Alaska 99802 or email at kris.riesenber@dot.gov . Please feel free to contact me at (907) 586-7413 with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Kris Riesenber", with a stylized, flowing script.

Kris Riesenber
FHWA NEPA Project Manager

Enclosure:

Gravina Access Project Supplemental Environmental Impact Statement
Essential Fish Habitat Assessment Addendum

Electronically cc w/ enclosure:

Jeanne Hanson, NMFS, Anchorage
John Barnett, DOT&PF, Southeast Project Environmental Coordinator
Jim Lowell, DOT&PF, Special Projects Manager
Mark Dalton, HDR Alaska, Inc.

Gravina Access Project Supplemental Environmental Impact Statement

Essential Fish Habitat Assessment Addendum

DOT&PF Project No: 67698
Federal Project No: ACHP-0922(5)

Prepared for:



**State of Alaska
Department of Transportation
and Public Facilities
3132 Channel Drive
Juneau, Alaska 99811**

Prepared by:



**HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, Alaska 99503**

November 2011

Table of Contents

1	Background	1
2	Proposed Alternatives	1
2.1	Bridge Alternatives	1
2.1.1	Alternative C3-4 (Airport Bridge)	5
2.1.2	Alternative F3 (Pennock Island Bridges).....	5
2.2	Ferry Alternatives	6
2.2.1	Alternative G2 (Peninsula Point to Lewis Point).....	11
2.2.2	Alternative G3 (Downtown to South of Airport).....	11
2.2.3	Alternative G4 (New Ferry Adjacent to Existing Ferry)	12
2.2.4	Alternative G4v (Lower Cost Variant of Alternative G4)	12
3	Affected Essential Fish Habitat	12
3.1	Airport Creek	14
3.1.1	Species	14
3.1.2	Habitat.....	14
3.2	Government Creek	14
3.2.1	Species	14
3.2.2	Habitat.....	14
3.2.3	Species	15
3.2.4	Habitat.....	15
3.3	Gravina Creek	16
3.3.1	Species	16
3.3.2	Habitat.....	16
3.4	Rain Creek	16
3.4.1	Species	16
3.4.2	Habitat.....	16
3.5	Stensland Creek	17
3.5.1	Species	17
3.5.2	Habitat.....	17
3.6	Clam Creek	17
3.6.1	Species	17

3.6.2	Habitat.....	17
3.7	Marine Nearshore.....	18
4	Project Impacts and Conclusions.....	18
4.1	Tongass Narrows	18
4.1.1	General Impacts	18
4.1.2	Impacts of Pier Construction and Channel Modification	19
4.1.3	Temporary Impacts	27
4.1.4	Entrainment.....	27
4.1.5	Operational Impacts	27
4.2	Government Creek	27
4.3	Airport Creek	27
4.4	Other Anadromous Waterways.....	27
4.5	Cumulative Effects.....	31
5	Conservation Measures.....	31
	References.....	35

List of Tables

Table 1: Essential Fish Habitat Ground Fish Species in Project Area.....	13
Table 2: Essential Fish Habitat Salmon Species in Project Area.....	13
Table 3: Anadromous Waters in Project Area	14
Table 4: Quantities of fill, dredging, and other EFH impacts ¹	19

List of Figures

Figure 1. Potential EFH Impacts
Figure 2. Alternative F3, West Channel Widening
Figure 3. Alternative F3, West Channel Widening Cross Sections
Figure 4. Proposed Dredging for Ferry Alternatives
Figure 5. Proposed Dredging Locations for Alternative F3 and Marine Resources
Figure 6. Proposed Dredging Locations for Ferry Alternatives and Marine Resources
Figure 7. Proposed Anadromous Stream Crossings

List of Appendices

Appendix A. 2004 EFH Assessment

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1 Background

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Highway Administration (FHWA), has developed the Gravina Access Project to improve public access between Revillagigedo Island and Gravina Island. This project was one of 17 high priority infrastructure projects in the State of Alaska to be federally funded under the Federal Transportation Equity Act for the 21st Century (TEA-21), enacted in 1998¹.

In July 2004, FHWA and DOT&PF issued a Final Environmental Impact Statement (FEIS) for the Gravina Access Project, identifying a preferred alternative. The preferred alternative was Alternative F1, which included bridges across the East and West channels of Tongass Narrows at Pennock Island and the Gravina Island Highway to connect the bridge crossing with the airport. Alternative F1 was selected in a Record of Decision and, following permitting, the DOT&PF moved forward with the first phase of implementing Alternative F1: construction of the Gravina Island Highway, which was completed in 2008.

On September 21, 2007, due to rapidly escalating costs, Alaska Governor Sarah Palin directed the DOT&PF to look for a lower cost alternative for access to the airport and Gravina Island instead of proceeding further with Alternative F1. On July 2, 2008, FHWA issued a notice of intent to re-examine alternatives in a Supplemental Environmental Impact Statement (SEIS) and identify and select a new preferred alternative.

As part of the FEIS process, FHWA and DOT&PF consulted with the National Marine Fisheries Service on Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation Management Act (Magnuson-Stevens Act). In 2004, an EFH Assessment including negotiated conservation recommendations was included with the FEIS. These conservation recommendations were included in the ROD and concluded the EFH consultation process.

This report is an addendum to the EFH Assessment prepared for the Gravina Access Project in April 2004 (Appendix A). It provides updates to baseline conditions where appropriate, descriptions of project alternatives and potential impacts, and other changes from the 2004 EFH Assessment. Conservation measures to avoid and minimize potential project effects are also described.

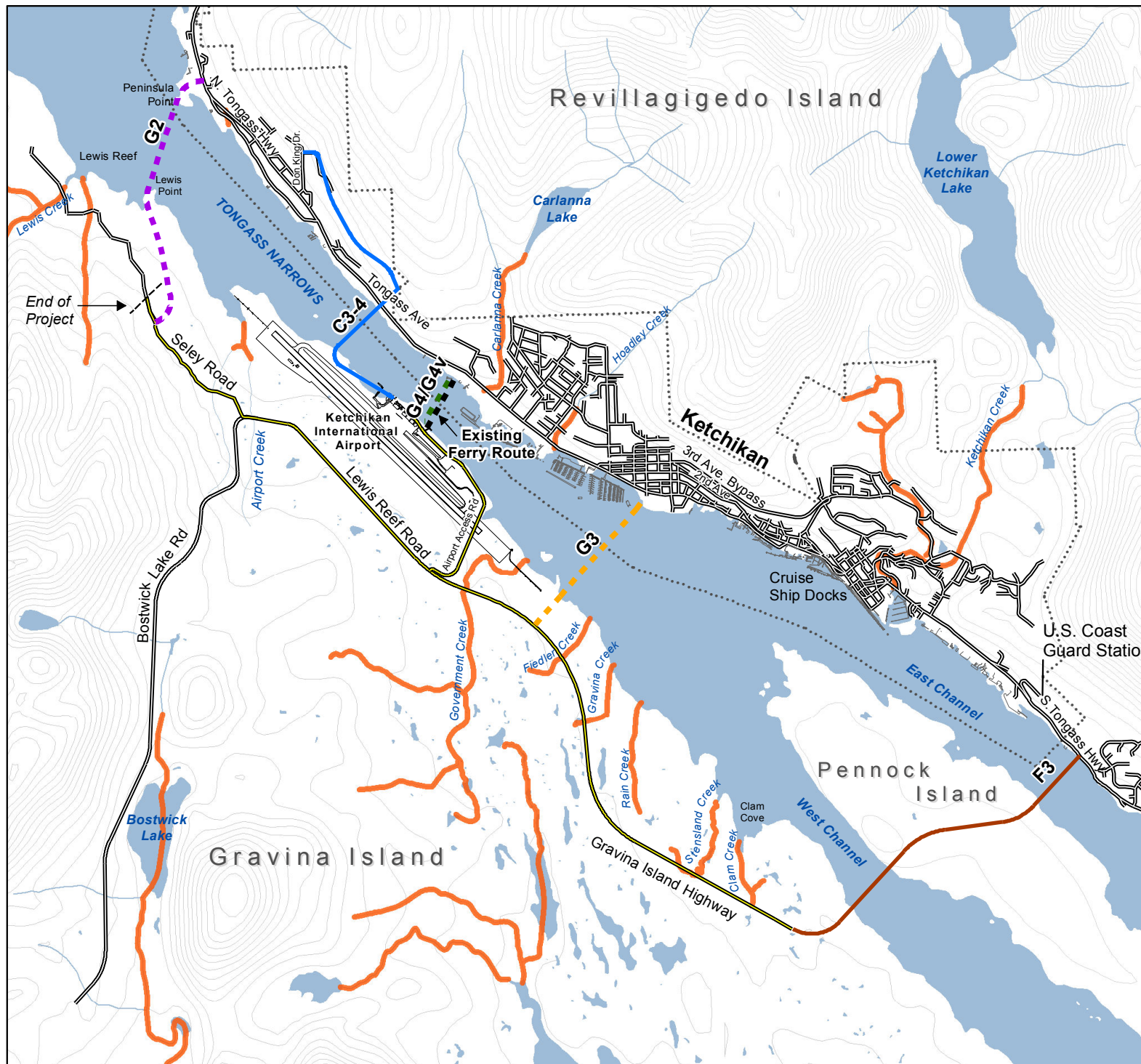
2 Proposed Alternatives

2.1 Bridge Alternatives

The FHWA and DOT&PF identified two reasonable bridge alternatives to evaluate in the SEIS: Alternatives C3-4 and F3. The Alternative C3-4 bridge is located near the airport. Alternative F3 includes two bridges crossing at Pennock Island: one bridge crosses over East Channel and one crosses over West Channel (Figure 1).

¹ Public Law 105-178, Subtitle F (High-Priority Projects), Section 1602 (Project Authorizations).

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Potential EFH Impacts

Proposed Alternatives

- Existing Ferry Route (No Action Alternative)

Ferry Alternatives

- G2
- G3
- G4/G4v

Bridge Alternatives

- C3-4
- F3

Improved Roads

- Multiple alignments

- Anadromous Fish Stream (ADF&G 2011)

- Roads
- Docks
- City boundary
- Water bodies
- Streams
- Contour (100' interval)



Date: October 27, 2011
 Projection: Alaska State Plane Zone 1, NAD 27
 Author: HDR Alaska, Inc.
 Sources: ADF&G, KGB, HDR Alaska, Inc.



Figure 1

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Alternative C3-4 is a new alternative similar to the C3a and C4 alternatives evaluated in the 2004 EFH Assessment. Alternative F3 is nearly identical to the F3 alternative evaluated in the 2004 EFH Assessment with minor modifications to bridge design, dredging quantities, and pier placement in Tongass Narrows. As the Gravina Island Highway was constructed in 2008, upgrades to existing anadromous stream crossings on Gravina Island vary from the 2004 EFH Assessment for each alternative. Alternatives C3a, C3b, C4, D1, and F1, which were other bridge alternatives evaluated in the 2004 EFH Assessment, are not being evaluated as part of the SEIS or this EFH Assessment update.

2.1.1 Alternative C3-4 (Airport Bridge)

This alternative would follow the Bench Road alignment on Revillagigedo Island and would cross over Tongass Avenue and Tongass Narrows, and then turn southward to parallel the northern airport taxiway and airport runway, and ultimately touch down (reach the ground surface) on Gravina Island near the north end of the airport terminal at the existing parking lot.

The Alternative C3-4 bridge across Tongass Narrows would be 48 feet wide and approximately 4,190 feet long. The maximum height of the bridge over the navigational channel would be approximately 280 feet above mean higher high water (MHHW). Alternative C3-4 would require placement of piers in near-shore waters on the eastern side of Tongass Narrows that could affect bull kelp beds. On the western side of Tongass Narrows, the bridge piers would be located in an area that currently supports part of a near-continuous eelgrass bed that is interspersed with beds of kelp and an area of bull kelp. Approximately 42,000 cubic yards of fill would be required in this area .

The following improvements would be made to Gravina Island roadways under Alternative C3-4.

- Reconstruction of the Lewis Reef Road bridge over Airport Creek: 36 feet wide, gravel surface.
- Construction of Seley Road from Lewis Reef Road to Airport Development Land boundary: 36 feet wide, gravel surface.

2.1.2 Alternative F3 (Pennock Island Bridges)

The East Channel bridge would connect directly to South Tongass Highway on Revillagigedo Island. From this terminus, the bridge would cross the East Channel to Pennock Island. From Pennock Island, the West Channel bridge would cross to Gravina Island and connect with the Gravina Island Highway, approximately 3 miles south of the airport. The East Channel bridge would be approximately 1,985 feet long and have a maximum height of approximately 115 feet. The bridge would have a vertical navigational clearance of 60 feet above MHHW. The West Channel bridge would be approximately 2,470 feet long and have a maximum height of approximately 270 feet. The bridge would have a vertical navigational clearance of 200 feet above MHHW.

In order to improve its navigational characteristics for cruise ships transiting the West Channel, the narrowest portion of the channel would be widened. The proposed modifications would widen this portion of the channel to 750 feet. The center 550 feet would have a minimum depth of 40 feet at low tide and the 100 feet of channel on either side would have a minimum depth of 30 feet at low tide. The dredged quantity is approximately 213,000 cubic yards over 15 acres of

fractured rock and bedrock that would require blasting before removal by dredge. All material removed would be disposed of at a pre-approved marine location. Channel widening would impact intertidal and subtidal habitat in areas adjacent to Gravina and Pennock Islands (Table 1). The areas of the West Channel to be widened are shown on Figure 2 and associated cross-sections are shown in Figure 3.

The following improvements would be made to Gravina Island roadways under Alternative F3.

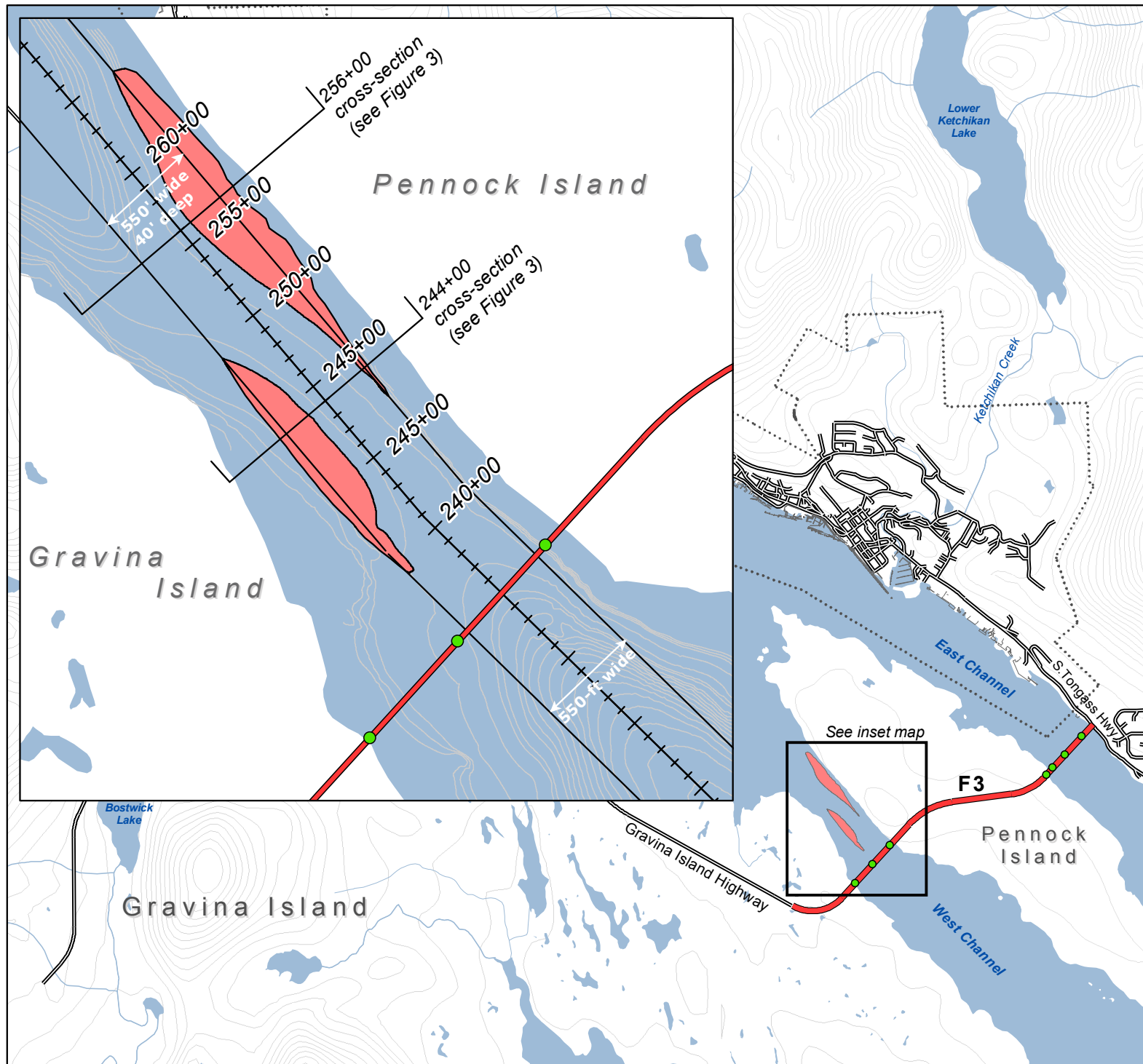
- Widening Gravina Island Highway to 40 feet and paving along its entire length, including lengthening of several culverts.
- Widening Gravina Island Highway bridge over Gravina Creek to 40 feet and paving bridge surface.
- Widening Gravina Island Highway bridge over Government Creek to 40 feet and paving bridge surface.
- Widening Airport Access Road to 40 feet and paving along its entire length.
- Reconstruction of the Airport Access Road/Gravina Island Highway intersection to eliminate the curve and create a straight T-intersection.
- Reconstruction of the Lewis Reef Road bridge over Airport Creek to 36 feet wide with a gravel surface.
- Construction of Seley Road from Lewis Reef Road to Airport Development Land boundary: 36 feet wide, with a gravel surface.

2.2 Ferry Alternatives

Alternatives G2, G3, and G4 would augment the existing airport ferry service with new ferry service between two new ferry terminals (one on either side of Tongass Narrows) using two new ferries. All ferry alternatives include:

- A 60-passenger waiting facility at the existing ferry terminal on Revillagigedo Island.
- A new heavy freight dock on a 2.5-acre site near the airport, just to the south of the existing ferry berth to provide heavy freight access to Gravina Island for highway loads that cannot be accommodated by the shuttle ferry.
- Reconstruction of the existing airport ferry transfer bridges and ramps, if needed to meet current design standards.
- Upgrades and improvements for all sidewalks and wheelchair ramps associated with the airport ferry facilities to meet applicable standards.
- Replacement of the deficient existing ferry layup dock and transfer bridge to support layup and maintenance of the airport shuttle ferry system.

A lower-cost variant of Alternative G4, known as Alternative G4v, is included in the SEIS. Alternative G4v would include all of the above-noted facilities, but would not include new ferry service like Alternatives G2, G3, and G4 (i.e., no additional ferry terminals or ferries).



Alternative F3: West Channel Widening

- F3
- F3 Pier Locations
- Area of proposed dredging
- + + + Proposed cruise ship track line
- roads
- docks
- - - city boundary
- water bodies
- ~ streams



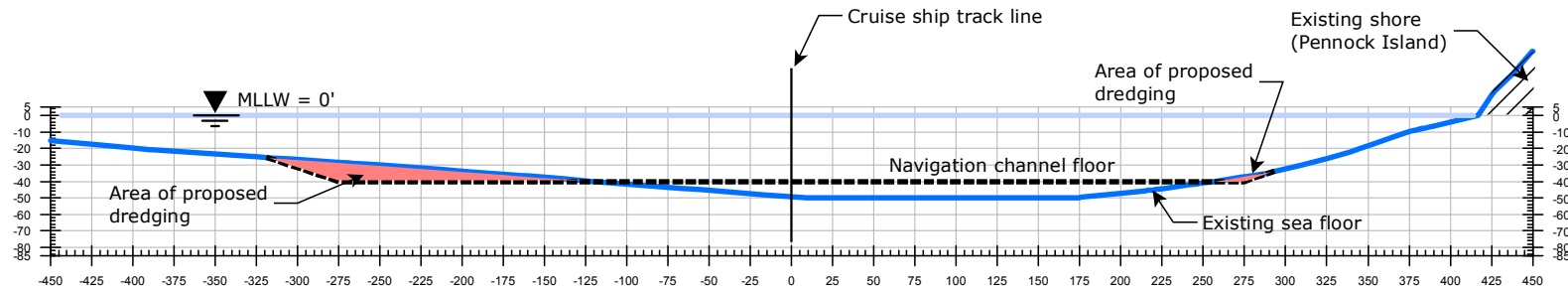
Date: August 26, 2010
 Projection: Alaska State Plane Zone 1, NAD 27
 Author: HDR Alaska, Inc.
 Sources: KGB, HDR Alaska, Inc.



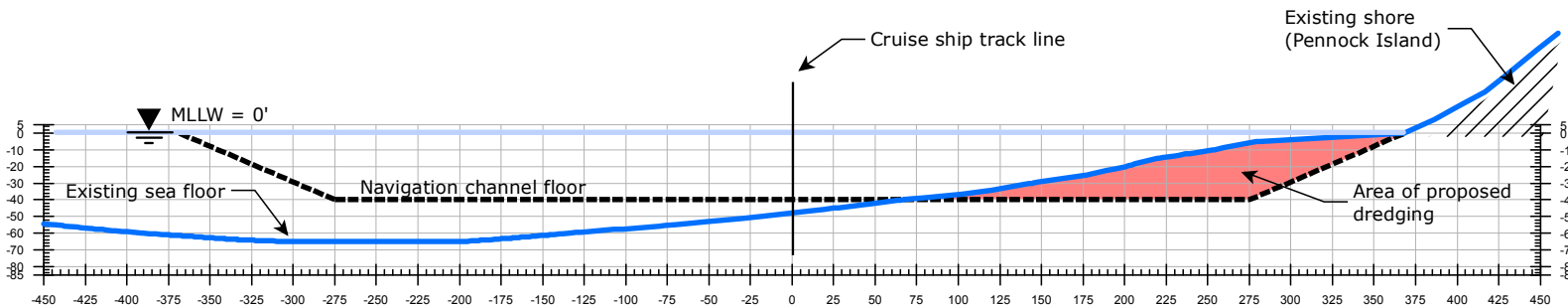
Figure 2

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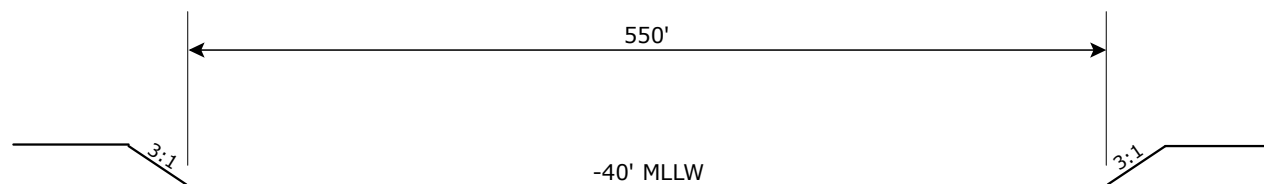
Alternative F3: West Channel Widening Cross-Sections



244+00



256+00



Navigation Channel Floor

* Navigation channel floor configuration is based on a modeled, minimum section which provides adequate draft for 2-way cruise ship traffic.

- Navigation channel floor
- Existing sea floor
- Mean lower low water (MLLW) (elevation = 0')
- Area of proposed dredging

Note: Drawings not to scale.



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Figure 3

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Alternatives G2, G3, and G4 are nearly identical to the ferry alternatives evaluated as part of the 2004 EFH Assessment, with only minor changes to dock design and dredging quantities in Tongass Narrows. Similar to the bridge alternatives, the ferry alternatives would require upgrades to Gravina Island roadways, which is a change from the 2004 EFH Assessment.

2.2.1 Alternative G2 (Peninsula Point to Lewis Point)

Alternative G2 would be a new ferry service for vehicles and passengers between Peninsula Point on Revillagigedo Island and Lewis Point on Gravina Island. Two new ferry vessels and construction of a new ferry terminal on each side of Tongass Narrows would be required for this alternative. Alternative G2 would require the removal of approximately 1,400 cubic yards of material in Tongass Narrows near the proposed Gravina Island terminal (Figure 4). A 0.8-mile long, 40-foot wide paved access road would be constructed on Gravina Island to connect the ferry terminal site to Seley Road. The following improvements would be made to Gravina Island roadways under Alternative G2:

- Construction of Seley Road from the ferry terminal access road to Lewis Reef Road: 40 feet wide, paved surface.
- Construction of Seley Road from ferry terminal access road to Airport Development Land boundary: 36 feet wide, gravel surface.
- Reconstruction of the Lewis Reef Road bridge over Airport Creek: 40 feet wide, paved surface.
- Reconstruction of Lewis Reef Road from Seley Road to Airport Access Road: widened to 40 feet, paved surface.
- Reconstruction of the Airport Access Road/Gravina Island Highway intersection to eliminate the curve and create a straight T-intersection.
- Widening Airport Access Road to 40 feet and paving along its entire length.

2.2.2 Alternative G3 (Downtown to South of Airport)

Alternative G3 would be new ferry service for vehicles and passengers between Ketchikan (near the Plaza Mall at Bar Point) on Revillagigedo Island and a location near Clump Cove on Gravina Island. This alternative would require construction of a new ferry terminal on each side of Tongass Narrows and two new ferry vessels. Dredging (18,600 cubic yards) may be required to provide adequate navigational depth for the ferry terminal on Revillagigedo Island (Figure 4). The existing breakwater could also be widened and extended for use as the ferry terminal pier. A 0.2-mile long, 40-foot wide paved access road would be constructed on Gravina Island to connect the ferry terminal site to the Gravina Island Highway. The following improvements would be made to Gravina Island roadways under Alternative G3:

- Widening Gravina Island Highway to 40 feet and paving it from the ferry access road to the intersection with the Airport Access Road.
- Widening Gravina Island Highway bridge over Government Creek to 40 feet and paving bridge surface.
- Reconstruction of the Airport Access Road/Gravina Island Highway intersection to eliminate the curve and create a straight T-intersection.

- Widening Airport Access Road to 40 feet and paving along its entire length.
- Construction of Seley Road from Lewis Reef Road to Airport Development Land boundary: 36 feet wide, gravel surface.
- Reconstruction of the Lewis Reef Road bridge over Airport Creek: 36 feet wide, paved surface.

2.2.3 Alternative G4 (New Ferry Adjacent to Existing Ferry)

Alternative G4 would be new ferry service for vehicles and passengers with new ferry terminals adjacent to the existing ferry terminals and an adjacent airport ferry route from Charcoal Point on Revillagigedo Island to the airport on Gravina Island. Alternative G4 would require the removal of approximately 15,200 cubic yards of material near both the Revillagigedo Island and Gravina Island terminals (Figure 4). The following improvements would be made to Gravina Island roadways under Alternative G4.

- Reconstruction of the Lewis Reef Road bridge over Airport Creek: 36 feet wide, gravel surface.
- Construction of Seley Road from Lewis Reef Road to Airport Development Land boundary: 36 feet wide, gravel surface.

2.2.4 Alternative G4v (Lower Cost Variant of Alternative G4)

Alternative G4v is a lower cost variant to Alternative G4 to address immediate needs for improved facilities for airport travelers and heavy freight movement. No dredging would occur as a result of this alternative. Improvements under this alternative include a new waiting facility on Revillagigedo Island, shuttle vans, new freight dock, new ferry lay up dock, upgraded ferry transfer bridges, and improved sidewalks. The following improvements would be made to Gravina Island roadways under Alternative G4v.

- Reconstruction of the Lewis Reef Road bridge over Airport Creek: 36 feet wide, gravel surface.
- Construction of Seley Road from Lewis Reef Road to Airport Development Land boundary: 36 feet wide, gravel surface.

3 Affected Essential Fish Habitat

Tongass Narrows is designated as EFH under the Magnuson Stevens Fisheries and Conservation Management Act (MSA) for 11 species of ground fish and 5 species of Pacific salmon. EFH listings are summarized in Tables 1 and 2. For detailed information on each species, refer to Sections 3.3 and 3.5 in the 2004 EFH Assessment (Appendix A). No new listings or changes to EFH species have occurred since the 2004 EFH Assessment (Eagleton 2011; ADF&G 2011; NOAA 2011).

Table 1: Essential Fish Habitat Ground Fish Species in Project Area

Ground Fish Species	Egg	Larvae	Late Juvenile	Adult	Spawning
Pacific Ocean Perch			X	X	
Yelloweye Rockfish			X	X	
Shortraker			X	X	
Rougheye Rockfish			X	X	
Dusky Rockfish			X	X	
Walleye Pollock	X			X	
Sablefish			X	X	
Pacific Cod			X	X	
Arrowtooth Flounder			X	X	
Sculpin spp.			X	X	
Skates spp.			X	X	

Source: NOAA 2011; Eagleton 2011

Table 2: Essential Fish Habitat Salmon Species in Project Area

Salmon Species	Egg and larvae – fresh water	Juvenile – fresh water	Juvenile – estuarine	Juvenile – marine	Adult – marine waters	Spawning – fresh water only
Coho salmon	X	X	X	X	X	X
Chum salmon	X	X	X	X	X	X
Pink salmon	X	X	X	X	X	X
Chinook salmon*				X	X	
Sockeye salmon*				X	X	

* Both species are found only in Tongass Narrows within the project area; however, they do occur as freshwater eggs, larvae and juveniles in other freshwater streams in the Ketchikan area.

Source: Johnson and Blanche 2011; NOAA 2011

In addition to the marine habitat of Tongass Narrows, several fish streams listed as anadromous in ADF&G's *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* are located in the project area. The catalog identifies various waterbodies in Alaska that are important to the spawning, rearing, or migration of anadromous fishes (Johnson and Blanche 2011; ADF&G 2011). Table 3 identifies the anadromous waters in the project area. (Figure 2; Table 3).

Table 3: Anadromous Waters in Project Area

Stream Name	ADF&G No.	EFH Species
Airport Creek	101-47-10450-2002 and 101-47-10450	Coho and pink salmon present
Government Creek	101-47-10400	Coho, chum and pink salmon present
Fiedler Creek	101-47-10380	Coho salmon present
Gravina Creek*	101-47-10350	Coho salmon present
Rain Creek	101-47-10340	Coho salmon present
Stensland Creek	101-47-10320	Coho salmon rearing habitat present
Clam Creek	101-47-10310	Coho salmon present

Source: Johnson and Blanche 2011; ADF&G 2011

*Referred to as Long Lake Creek in Catalog (ADF&G 2011)

3.1 Airport Creek

3.1.1 Species

During fish surveys conducted by HDR in 2004, both coho and pink salmon were observed in Airport Creek downstream of the proposed crossing. According to the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADF&G 2011), coho and pink salmon are present in the lower reaches of Airport Creek below the proposed crossing location..

3.1.2 Habitat

The 2004 EFH assessment documented Airport Creek as anadromous in the upper reaches of the creek. Since then, a fish barrier downstream of the bridge crossing was documented. Because of this barrier, the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADF&G 2011) categorizes Airport Creek as anadromous only on its lower reaches (Figure 1).

No other changes to baseline habitat conditions have occurred since the 2004 EFH Assessment. Section 3.4.2 of the 2004 EFH Assessment provides a description of habitat (Appendix A).

3.2 Government Creek

3.2.1 Species

During fish surveys conducted by HDR in 2004, both coho and pink salmon were observed (HDR 2004). According to the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADF&G 2011), Government Creek provides habitat considered to be EFH for coho, chum, and pink salmon. Chum salmon were not listed as present in Government Creek in the 2004 EFH Assessment.

3.2.2 Habitat

In conjunction with the extension of the runway safety area at Ketchikan International Airport in 2007-08, the DOT&PF and Federal Aviation Administration (FAA) re-routed Government

Creek. As part of the re-route effort, two small creeks, North Tributary and Boulder Creek, were routed into the new Government Creek channel, which increased the available fish habitat (Minnillo 2008). Approximately a half mile of new channel was designed and constructed for Government Creek and a tributary to avoid the need to place the streams in a long culvert. The new channel contains habitat features including large woody debris, large boulders, and multiple riparian vegetation islands. Three side channels were cut into the flood plain bedrock to provide off channel rearing habitat for coho salmon. In addition, a 0.7-acre brackish marsh estuary was constructed at the stream mouth to provide a gradual and natural transition from the new stream into the marine environment of Tongass Narrows (Jensen et al. 2011). Section 3.4.1 of the 2004 EFH Assessment (Appendix A) describes habitat in Government Creek prior to the construction of the new channel and re-routing.

The realignment of the creek channel at the lower end resulted in removal of vegetation and disruption of stream substrate. However, within months of project completion, juvenile salmon were observed using the lower reaches of the new channel (Minnillo 2008). Monitoring is ongoing to assess the effectiveness and longevity of the newly designed habitat features and to provide pre- and post-construction data on eelgrass, clams, salt marsh vegetation, and fish spawning and rearing. The new stream and estuary supports abundant rearing by coho salmon and habitat quality and stream bed benthos appear to be improving (Jensen et al. 2011).

With development of the Gravina Island Highway in 2008, a full span bridge was constructed over Government Creek. The constructed bridge is 143 feet long and 38 feet wide. Bridge supports were constructed outside of “bankfull” and the 100-year floodplain. Any gravel or streambed material removed or temporarily impacted during construction was replaced with similar materials. In addition, stream banks were re-contoured to original conditions and reseeded with native vegetation to minimize erosion. No loss of EFH has occurred as a result of the bridge construction.

Fiedler Creek

3.2.3 Species

During fish surveys conducted by HDR in 2004, coho salmon were observed near the proposed crossing (HDR 2004). According to the ADF&G Anadromous Waters Catalog (ADF&G 2011), coho salmon are present in Fiedler Creek.

3.2.4 Habitat

As described in Section 3.4.3 of the 2004 EFH Assessment (Appendix A), the creek is confined to a low flow, low gradient, narrow channel that flows directly into Tongass Narrows. The creek is very narrow, approximately 3 feet wide and less than one foot deep. The creek is ephemeral in some locations with a gravel and cobble substrate with shale throughout the lower reaches becoming a muskeg channel with gravel substrate in the upper reaches. Overhanging riparian vegetation consisting of Sitka spruce and cedar-hemlock forest with a shrubby understory is present, which likely provides rearing habitat for juvenile salmon (HDR 2004).

With development of the Gravina Island Highway, a culvert was installed at the Fiedler Creek crossing. As permitted and approved, a 133-foot long by 78-inch wide corrugated metal pipe (CMP) was installed. The CMP was installed at a gradient of 2.68 percent, and gravel and streambed material was used in the bottom of the culvert. In addition, stream banks were re-contoured to original conditions and reseeded with native vegetation to minimize erosion. The

culvert was designed per DOT&PF agreement with the ADF&G specifically for fish passage: no loss of EFH has occurred as a result of culvert installation.

3.3 Gravina Creek

3.3.1 Species

During fish surveys conducted by HDR in 2004, coho salmon were observed near the proposed crossing (HDR 2004). According to the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADF&G 2011), coho salmon are present in Gravina Creek.

3.3.2 Habitat

With development of the Gravina Island Highway, a full span bridge was constructed over Gravina Creek. The constructed bridge is 63 feet long and 38 feet wide. Bridge supports were constructed outside of bankfull and the 100 year floodplain. Any gravel or streambed material removed or temporarily impacted during construction was replaced with similar materials. In addition, stream banks were re-contoured to original conditions and reseeded with native vegetation to minimize erosion. No loss of EFH has occurred as a result of the bridge construction.

As described in Section 3.4.3 of the 2004 EFH Assessment (Appendix A), the creek is confined to a low flow, low gradient, narrow channel that flows directly into Tongass Narrows. The creek is very narrow, ranging from 3 to 5 feet wide or less in most locations. The depths vary from shallow (1 foot) to 2 to 3 feet in some locations. The creek is ephemeral in some locations, depending on rainfall, and overhanging riparian vegetation consisting of Sitka spruce and cedar-hemlock forest with a shrubby understory is present, which likely provides rearing habitat for juvenile salmon (HDR 2004).

3.4 Rain Creek

3.4.1 Species

During fish surveys conducted by HDR in 2004, cutthroat trout were observed (HDR 2004). According to the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADF&G 2011), coho salmon are present in Rain Creek.. This creek was not included in the 2004 EFH Assessment because it was not cataloged as anadromous in 2004.

3.4.2 Habitat

With development of the Gravina Island Highway, a culvert was constructed at this creek crossing. The culvert was designed per DOT&PF agreement with the ADF&G specifically for fish passage. As approved, a 96 foot long by 66 inch wide CMP was installed. The CMP was installed at a gradient of 1.78 percent, and gravel and streambed material was used in the bottom of the culvert. In addition, stream banks were re-contoured to original conditions and reseeded with native vegetation to minimize erosion. No loss of EFH has occurred as a result of the culvert installation.

Similar to Gravina Creek, this creek is a low-flow and low-gradient system in a narrow channel that flows directly into Tongass Narrows. The creek averages 5 feet wide and 1 foot deep. In some locations the creek is ephemeral dependant on rainfall. Habitat is primarily narrow terraced

pools and riffles with small to large gravel substrate with a gradient of 2 percent . Riparian vegetation consisting of Sitka spruce and cedar-hemlock forest with a shrubby understudy is present, which likely provides rearing habitat for juvenile salmon. Undercut banks and large woody debris are present throughout the length of the creek (HDR 2004).

3.5 Stensland Creek

3.5.1 Species

During fish surveys conducted by HDR in 2004, coho and cutthroat trout were observed. (HDR 2004). According to the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADF&G 2011), coho salmon rearing habitat is present in Stensland Creek. This creek was not included in the 2004 EFH Assessment because it was not cataloged as anadromous in 2004.

3.5.2 Habitat

With development of the Gravina Island Highway, a culvert was constructed at this creek crossing. The culvert was designed per DOT&PF agreement with the ADF&G specifically for fish passage. As approved, a 142-foot long by 96-inch wide CMP was installed. The CMP was installed at a gradient of 0.3 percent, and gravel and streambed material was used in the bottom of the culvert. In addition, stream banks and side channels were re-contoured to original conditions and reseeded with native vegetation to minimize erosion. No loss of EFH has occurred as a result of the culvert installation.

Similar to Gravina Creek, Stensland Creek is confined to a low-flow, low-gradient, narrow channel that flows directly into Tongass Narrows. The creek is narrow, averaging 6.5 feet wide and 5 feet deep. The creek is ephemeral in some locations, depending on rainfall. Habitat is a deep, entrenched glide running through muskeg with organics and silt for substrate (HDR 2004). Overhanging riparian vegetation consisting of Sitka spruce and cedar-hemlock forest with a shrubby understudy is present, which likely provides rearing habitat for juvenile salmon.

3.6 Clam Creek

3.6.1 Species

During fish surveys conducted by HDR in 2004, coho and cutthroat trout were observed (HDR 2004). According to the *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADF&G 2011), coho salmon are present in Clam Creek.. This creek was not included in the 2004 EFH Assessment because it was not cataloged as anadromous in 2004.

3.6.2 Habitat

With development of the Gravina Island Highway, a culvert was constructed at this creek crossing. The culvert was designed per DOT&PF agreement with the ADF&G specifically for fish passage. As approved, a 140 foot long by 108 inch wide CMP was installed. The CMP was installed at a gradient of 0.44 percent, and gravel and streambed material was used in the bottom of the culvert. In addition, stream banks were re-contoured to original conditions and reseeded with native vegetation to minimize erosion. No loss of EFH has occurred as a result of the culvert installation.

Similar to Gravina Creek, Clam Creek is a low-flow and low-gradient system in a narrow channel that flows directly into Tongass Narrows at Clam Cove. Clam Creek consists of a pool and riffle channel with gravel, small cobbles, and bedrock with a gradient of 3 percent (HDR 2004). The creek averages 10 feet wide and less than 1 foot deep. In some locations the creek is ephemeral depending on rainfall. Overhanging riparian vegetation consisting of Sitka spruce and cedar-hemlock forest with a shrubby understory is present, which likely provides rearing habitat for juvenile salmon.

3.7 Marine Nearshore

No changes to baseline conditions have occurred since the 2004 EFH Assessment. Refer to Section 3.4.3 in the 2004 assessment (Appendix A) for a description of marine nearshore habitat.

4 Project Impacts and Conclusions

Construction activities within coastal watersheds and in coastal marine areas will impact EFH. These activities may adversely impact marine resources directly and indirectly through habitat loss and/or modification, loss of prey species in fill and dredging areas, changes in hydrologic patterns, and increased turbidity. Other impacts that may occur as a result of the proposed project include the following: runoff from new roadways, increased human access (e.g., for fishing), and development of shoreline property. Locations of the anadromous fish stream crossings and alternatives are shown in Figure 1. Project impacts as described in the 2004 EFH Assessment remain largely unchanged and are summarized in Table 4. Only impacts that have changed since the 2004 EFH Assessment are described below and are noted in bold text in Table 4.

Alternatives C3a, C3b, C4, D1, and F1 are not evaluated as part of the SEIS or in this EFH Assessment Addendum. Alternative C3-4 is a hybrid of C3a and C4 alternatives evaluated in the 2004 FEIS; thus, impacts generally described for those original bridge options apply to C3-4. Alternative F3 is very similar to the F3 alternative evaluated in the 2004 FEIS and the impacts, likewise, are very similar. Descriptions of ferry alternative impacts described in the 2004 EFH Assessment are applicable to Alternatives G2, G3, and G4 in this addendum. The new ferry alternative, G4v, would have fewer impacts than Alternative G4 because there would be no development associated with new ferry service.

4.1 Tongass Narrows

4.1.1 General Impacts

The general impacts regarding effects from construction activities are described in Section 4.1.1, General Impacts in the 2004 EFH Assessment (Appendix B). Table 4 shows water body crossings, piers, fill and dredging impacts to Tongass Narrows from construction of each alternative.

Table 4: Quantities of fill, dredging, and other EFH impacts¹

	C3-4	F3	G2	G3	G4	G4v
Anadromous Stream Crossings ²	1	7	2	3	2	2
Piers in Tongass Narrows	13	6	0	0	0	0
Shading (acres)	0	0.1	0.2	0.2	0.3	0.1
Fill in Tongass Narrows (cubic yards) ³	42,000	0	21,000	18,000	0	0
Dredging in Tongass Narrows (cubic yards / acres)	0 / 0	213,000 / 15	1,400 / 0.25	18,600 / 2.2	15,200 / 0.4	0
Eelgrass ⁴ (acres)	0	0.5	0	0.7	0	0
Kelp ⁴ (acres)	0	1.8	0	0.5	0.1	0
Saltmarsh ⁴ (acres)	0	0	1.0	2.0	0	0

¹ Numbers in **bold** are updated quantities since the 2004 EFH Assessment.

² Indicates the total number of anadromous stream crossings for new construction and improvements to existing roads (not including Tongass Narrows). No permanent loss of EFH would occur because bridge and culvert design would preserve EFH.

³ For bridge alternatives, fill quantities shown do not include the bridge piers.

⁴ Eelgrass, kelp, and saltmarsh are a subset of the fill and dredging quantities provided.

4.1.2 Impacts of Pier Construction and Channel Modification


Channel modification and pier construction impacts are described in Section 4.1.1, Impacts of Pier Construction and Channel Modification in the 2004 EFH Assessment (Appendix A).





Alternative F3 would require modification to West Channel to improve navigation clearances as discussed in the 2004 EFH Assessment and shown on Figures 2 and 3. Channel modification would require the dredging of approximately 213,000 cubic yards of fractured rock and bedrock (Figure 2), which would require the use of explosives. Substantial removal of sediment and rock would require ocean disposal. Dredging in the West Channel would remove approximately 15 acres of subtidal habitat from areas adjacent to Gravina and Pennock Islands (Table 3). This alternative would eliminate approximately 1.8 acres of existing kelp beds including *Nereocystis* and *Laminaria*, and 0.5 acres of eelgrass beds (Figure 5 and Table 3). The area dredged may re-colonize over time but would differ from in terms of species composition and abundance. No dredging will be required for Alternative C3-4.

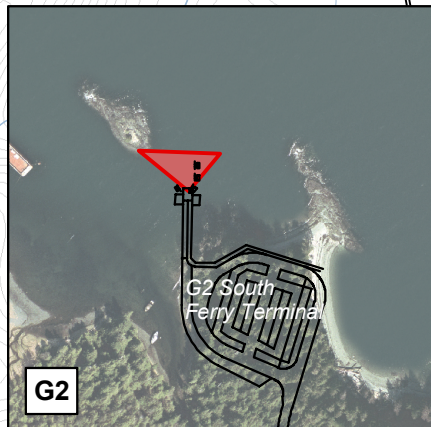
The ferry alternatives, with the exception of Alternative G4v, would also require minor dredging in Tongass Narrows to produce adequate water depths for ferry docking as described in the 2004 EFH Assessment (Figures 4 and 6). Footprints for the ferry docks have been slightly modified resulting in revised quantities for dredging. Alternative G2 would require the removal of approximately 1,400 cubic yards of material near the proposed south terminal. Alternative G3 would require the removal of approximately 18,600 cubic yards of material near both the proposed north and south terminals. Alternative G4 would require the removal of approximately 15,200 cubic yards of material near the north and south terminals. Dredged debris will be placed onto a barge where it will enter a settling basin and be disposed of on land.

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Proposed Dredging for Ferry Alternatives

 Proposed Dredging for Ferry Alternatives

 roads
 city boundary
 water bodies
 streams



Date: September 1, 2010
 Projection: Alaska State Plane Zone 1, NAD 27
 Author: HDR Alaska, Inc.
 Sources: KGB, HDR Alaska, Inc.




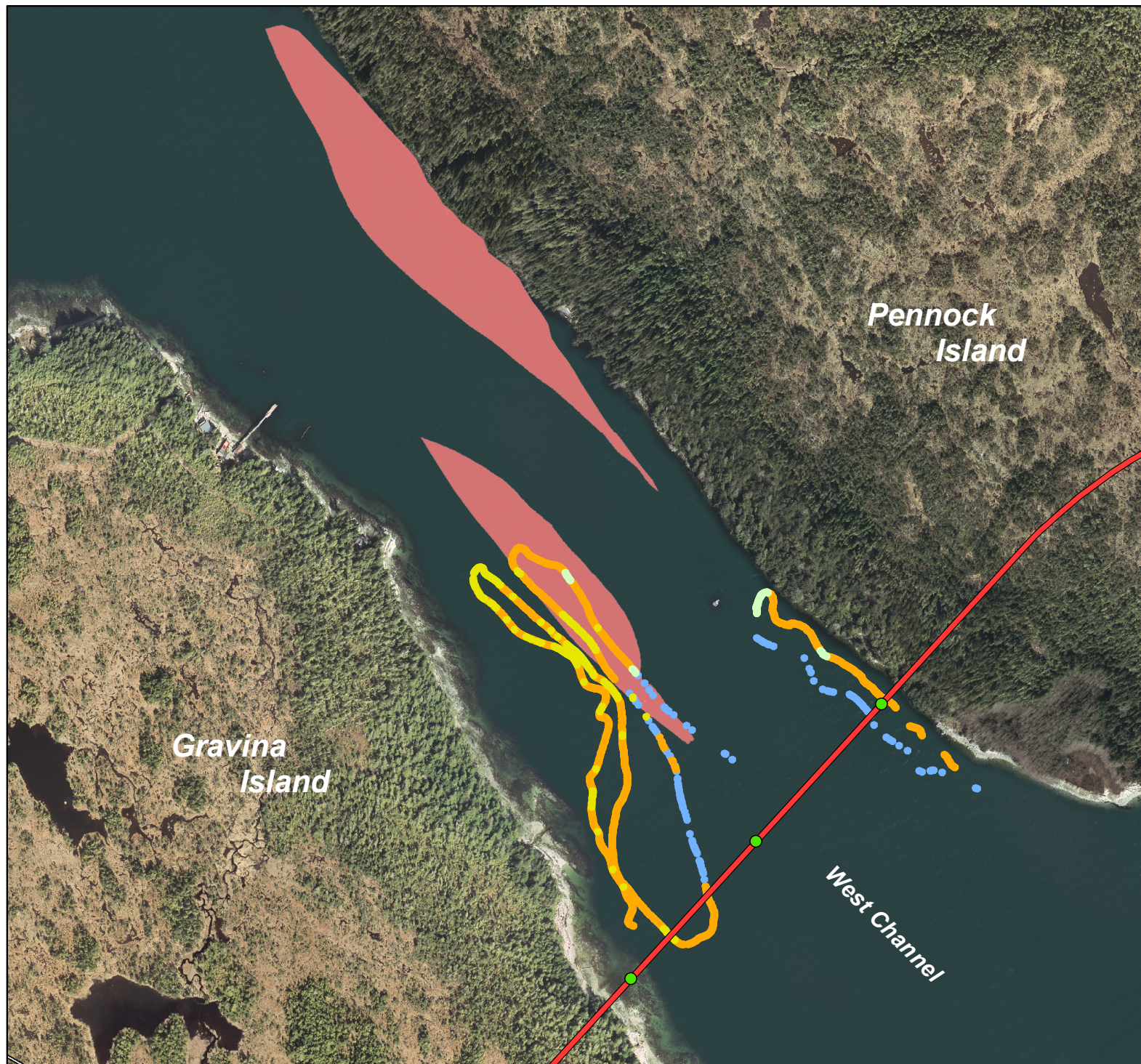
0 0.25 0.5
 Miles 

Figure 4

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Proposed Dredging Locations for Alternative F3 and Marine Resources

- F3
- F3 Pier Locations
- Area of proposed dredging

Marine resources

- Algae
- Bullkelp
- Cucumber
- Eelgrass
- Laminaria

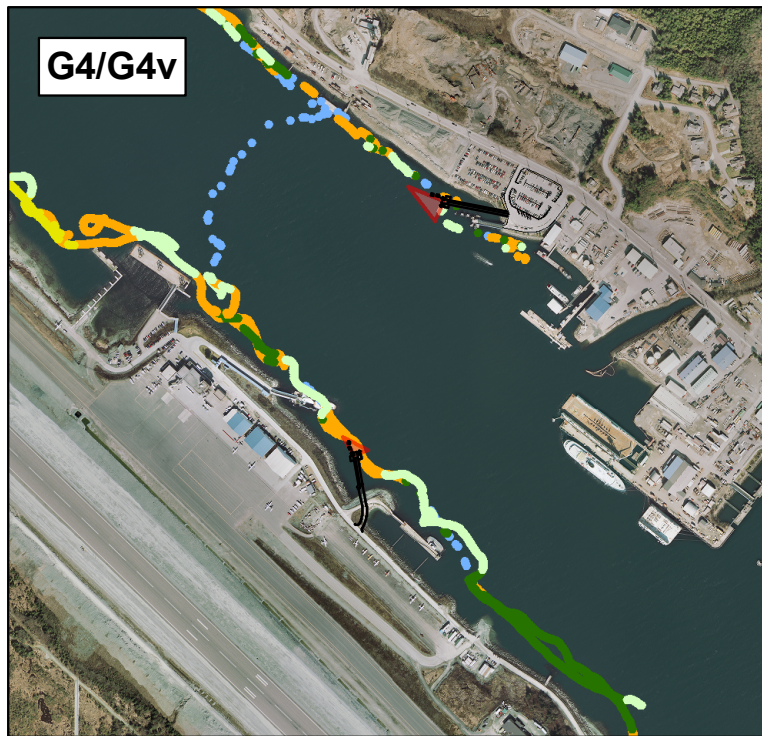
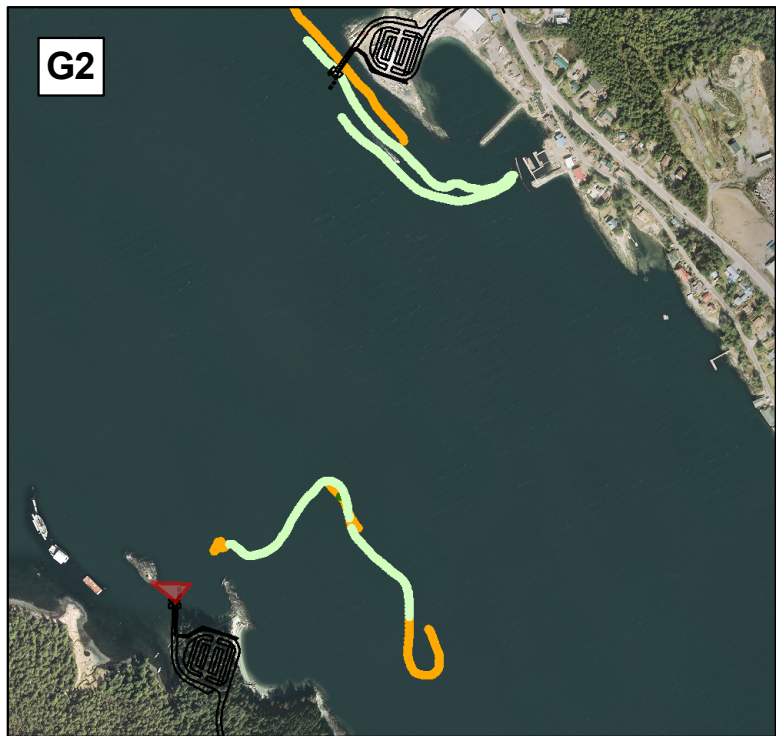


Date: August 26, 2010
 Projection: Alaska State Plane Zone 1, NAD 27
 Author: HDR Alaska, Inc.
 Sources: KGB, HDR Alaska, Inc.




Figure 5






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Proposed Dredging Locations for Ferry Alternatives and Marine Resources

 Proposed Dredging for Ferry Alternatives

Marine resources

-  Algae
-  Bullkelp
-  Cucumber
-  Eelgrass
-  Laminaria



Date: August 26, 2010
 Projection: Alaska State Plane Zone 1, NAD 27
 Author: HDR Alaska, Inc.
 Sources: KGB, HDR Alaska, Inc.



0 500 1,000
 Feet



Figure 6

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4.1.3 Temporary Impacts

Temporary impacts are described in Section 4.1.1, Temporary Impacts in the 2004 EFH Assessment (Appendix A). No changes to temporary impacts are anticipated.

4.1.4 Entrainment

Entrainment is described in Section 4.1.1, Entrainment in the 2004 EFH Assessment (Appendix A). No changes are proposed.

4.1.5 Operational Impacts

Operational impacts are described in Section 4.1.1, Operational Impacts in the 2004 EFH Assessment (Appendix A). No changes to operational impacts are anticipated.

4.2 Government Creek

As described in Section 3.2, Government Creek in the 2004 EFH Assessment (Appendix A), a full span bridge was constructed over Government Creek during the Gravina Island Highway construction. Alternatives G3 and F3 would utilize this stretch of the Gravina Island Highway, requiring additional widening from a 36-foot wide road to 40-foot road, not including the road prism. The bridge over Government Creek would be widened to match the highway but would not require any in-water work. A typical cross section of the proposed bridge is shown on Figure 7. Temporary impacts from sediment and erosion along the banks would be minimized through implementation of Best Management Practices (BMPs). Disturbed areas would be reseeded with native vegetation to minimize erosion following construction. No loss of EFH would occur as a result of bridge widening.

4.3 Airport Creek

The potential impacts to Airport Creek described in Section 4.3 of the 2004 EFH Assessment (Appendix A) remain the same. No changes are proposed.

4.4 Other Anadromous Waterways

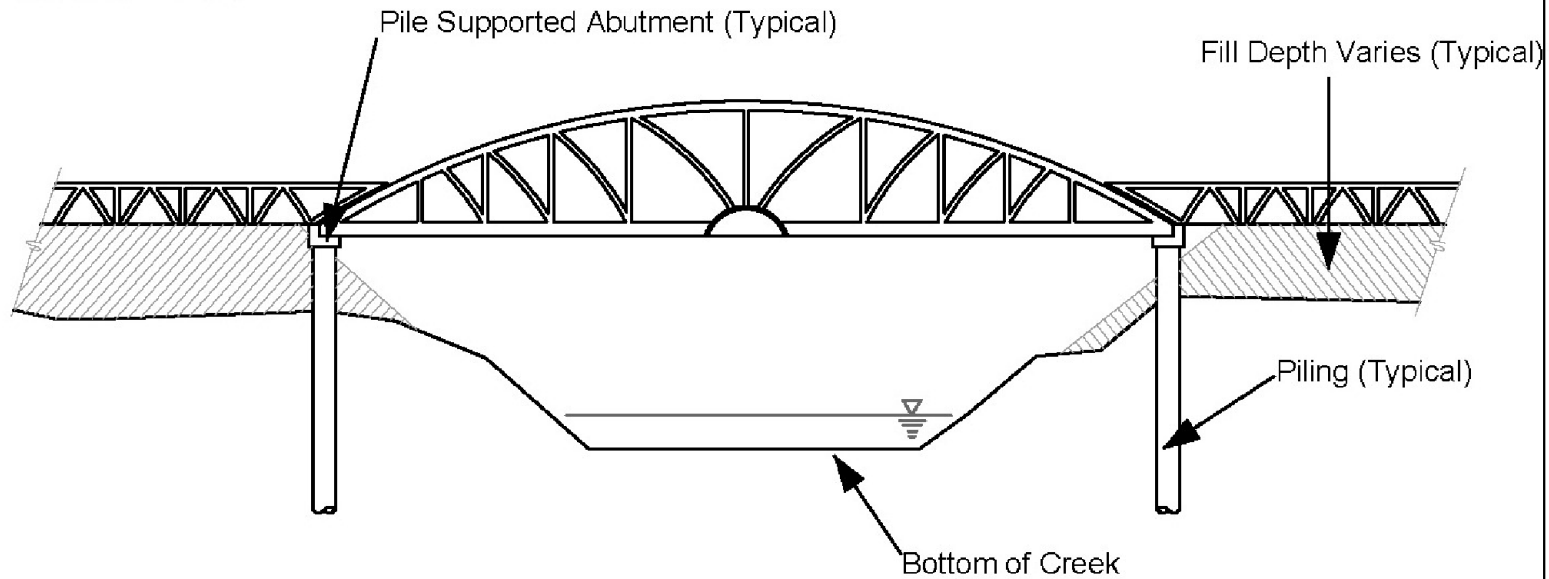
Implementation of Alternative F3 would require widening the existing 36-foot wide Gravina Island Highway to 40 feet (not including the road prism). In addition to widening the bridge over Government Creek (described above in Section 4.2), highway widening for Alternative F3 would require widening of the bridges over Gravina Creek and the culverts at Rain Creek, Stensland Creek, and Clam Creek.

The bridge at Gravina Creek would be widened to match the highway but would not require any in-water work. Temporary impacts from sediment and erosion along the banks would be minimized through implementation of BMPs. Disturbed areas would be reseeded with native vegetation to minimize erosion following construction. No loss of EFH would occur as a result of bridge widening.

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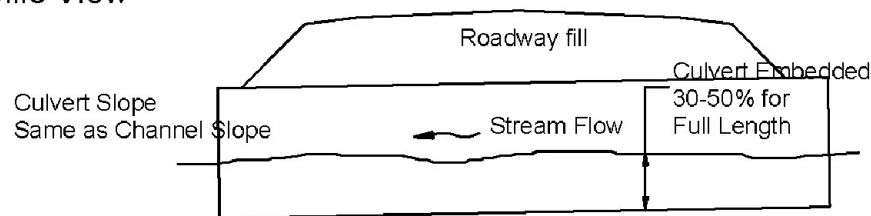
Conceptual Clear Span Bridge

Elevation View

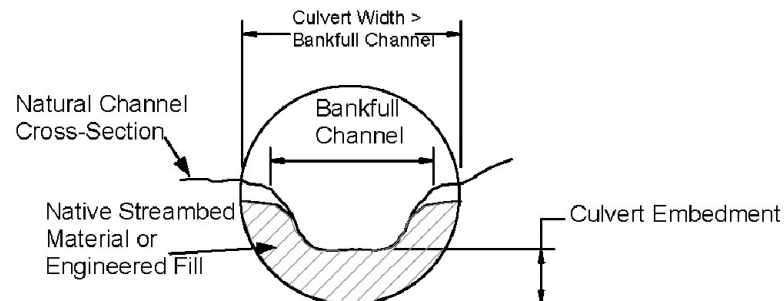


Conceptual Embedded Culvert

Profile View



Section View



Proposed Anadromous Stream Crossings

Note: Drawings not to scale.



Date: September 7, 2010
Projection: Alaska State Plane Zone 1, NAD 27
Author: HDR Alaska, Inc.
Sources: HDR Alaska, Inc.



Figure 7

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The culvert crossings would require extension of the existing culverts and would require in-water work. Any impacts to EFH would be temporary and related to the installation of the culverts. Temporary impacts could include an increase in turbidity levels or a temporary diversion of the creeks to allow installation of the culverts. BMPs would be employed to minimize temporary impacts during construction. There would be no permanent loss of EFH resulting from the culvert crossings, because the required culvert design features noted above would preserve EFH. Gravel and streambed material would be used in the bottom of the culverts. In addition, stream banks would be re-contoured to original conditions and reseeded with native vegetation to minimize erosion. Typical cross sections for the bridge and culverts are shown on Figure 7.

4.5 Cumulative Effects

Cumulative Effects described in Section 4.5 of the 2004 EFH Assessment (Appendix A) remain the same. No changes are proposed.

5 Conservation Measures

The following conservation measures will be incorporated to avoid, minimize, and mitigate impacts to EFH. These are general measures that will be modified to specifically address details of the preferred alternative through further coordination with the agencies during final design.

- At all stream crossings (both culverts and bridge crossings), stream banks will be re-contoured to approximate original conditions and re-seeded with native vegetation to minimize erosion. BMPs, developed in accordance with EPA's "Storm Water Management for Construction Activities: Developing Pollution and Prevention Plans and Best Management Practices," EPA Document 832 R-92-005 (EPA 1992), will be employed to minimize the introduction of sediment and siltation of ponds and streams during adjacent fill placement and during culvert placement.
- For all project-related crossings of fish-bearing waters that incorporate bridges or culverts, the Applicant shall design, construct, and maintain the conveyance structures in accordance with the National Marine Fisheries Service 2008 publication, "Anadromous Salmonid Passage Facility Design" [National Marine Fisheries Service. 2008. Anadromous Salmonid Passage Facility Design. National Marine Fisheries Service, Northwest Region, Portland, Oregon] or equivalent and reasonable requirements.
- In-water work in Tongass Narrows will be restricted, as follows. General use of boats and barges could occur year round for general survey and work on bridge structures above water. Except for blasting, dredging, and pile driving, other work in marine waters could occur July 1-February 28. As further described below, blasting, dredging, and pile driving could occur only November 1-February 28, with the possible exception of mid-channel locations, based on further consultation with the Alaska Department of Fish and Game, NMFS, U.S. Army Corps of Engineers (COE), and U.S. Fish and Wildlife Service (USFWS).
- The following conservation recommendations will be followed with respect to pile driving in Tongass Narrows: A vibratory hammer will be used to drive steel piles instead of an impact hammer. Piles should be driven during low tide when in intertidal and subtidal areas.

- All construction in and around anadromous fish streams will take place when stream disturbances would have the least impact on anadromous fish species. The recommended time period for in-stream construction work in the Ketchikan area is June 15 through August 7 (Minnillo 2011). In-stream construction activities should completely avoid the period from August 8 through June 14. For the Ketchikan area, salmon fry generally emerge in the spring from April 15 to May 15, and the adults move into the streams by August 1 and remain through October 31 (Doherty 2003). However, timing of fry emergence and adult spawning depend on the species of fish present in each stream. For example, steelhead spawn in the spring and eggs are generally present in the stream until the middle of July. Construction work that occurs above the ordinary high water area of the stream and does not include in-stream construction may be conducted throughout the year (Minnillo 2004). In-water work areas, except for stream crossings by construction equipment, will be isolated from flowing waters of all anadromous fish streams.
- Any necessary in-water blasting will be performed such that ground vibration (particle velocity) does not exceed 2.0 inches per second and peak water overpressure (instantaneous pressure change) does not exceed 2.7 pounds per square inch. The project will employ monitoring devices to ensure adherence to these standards. If blasting amounts are minor, and if agreed by the agencies, monitoring may not be undertaken.
- The contractor will be required to prepare a blasting plan prior to any blasting activities. The blasting plan will be submitted to NMFS for review of both EFH and marine mammal impacts. A fish, marine mammal and invertebrate monitoring program will be required for any proposed blasting activities. A pre-blasting survey will be required to ensure that no fish schools are in the vicinity of the blasting area. If fish schools are detected, blasting will be delayed until they leave. A biologist will check the area and record any kills that are within 100 feet up current and 300 feet down current of the blast area after blasting is completed. Monitoring of the dredge materials may be incorporated into the blasting monitoring plan as a method for documenting organisms injured or killed in the blasting. Measures such as covering the rock to be blasted with sand may be used to dampen the blast impact. In-water blasting shall avoid the entire months of March through June to avoid juvenile salmonids and the period from June through October 31 to avoid adult salmon. All project-related activities will conform to the pertinent provisions of the Marine Mammal Protection Act and the Endangered Species Act.
- Dredged debris will be placed onto a barge where it will enter a settling basin and be disposed of on land. Only under Alternative F3, which could require substantial removal of sediment and rock, will ocean disposal be necessary. These operations for Alternative F3 will be consistent with the regulations of Clean Water Act, Section 404(b)(1) (disposal of dredged materials into waters of the U.S.) and Marine Protection, Research, and Sanctuaries Act, Sections 102 and 103. Monitoring of the dredged materials may be incorporated into the blasting monitoring plan as a method for documenting organisms injured or killed in the blasting. Dredging activities will avoid the entire months of March through October.
- All fueling and servicing operations will be conducted at least 100 feet away from all streams and water bodies, and fuel storage will be at least 100 feet away from all wetlands and water bodies.

- All necessary permits and agency approvals will be obtained prior to construction, and any permit stipulations will be incorporated into the contract specifications.
- Perimeter staking will be required on the outside of the disturbance area prior to construction to ensure that there is no additional impact from construction activities.
- Silt fences will be used adjacent to EFH stream channels, just beyond the estimated toe of fill.
- Gravel and streambed material will be used in the bottoms of fish-passage culverts.
- Riprap will be placed at specific locations along the stream bank as necessary to maintain stream bank integrity. Placement of riprap at anadromous fish streams should include the use of bioengineering techniques to improve habitat value of the riprap, by incorporation of willow stakes or other locally available vegetation.

In addition to the conservation measures listed above, more specific requirements may result during the permitting and final design process for the preferred alternative, should a build alternative be selected. By design, the permit stipulations will protect the known fish resources in the project area and will protect EFH areas.

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Appendix A

2004 EFH Assessment

Gravina Access Project

Essential Fish Habitat Assessment



Agreement No: 36893013
DOT&PF Project No: 67698
Federal Project No: ACHP-0922(5)

Prepared for:



State of Alaska
Department of Transportation and
Public Facilities
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Prepared by:



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April 2004

Table of Contents

1.0	Project Description	1
1.1	Location.....	1
1.2	Proposed Action and Impact Summary.....	1
2.0	Background Information	3
2.1	Magnuson-Stevens Fishery and Conservation Management Act.....	3
2.2	DOT&PF and NMFS Agreement of EFH Consultations	3
3.0	Affected Essential Fish Habitat.....	3
3.1	Species.....	3
3.2	General Habitat Description of Tongass Narrows	4
3.3	Ground Fish Species Descriptions.....	5
3.4	Anadromous Fish Waterways Habitat Descriptions	7
3.4.1	Government Creek	7
3.4.2	Airport Creek.....	7
3.4.3	Other Anadromous Fish Waterways.....	8
3.5	Salmonid Species Descriptions	8
4.0	Project Impacts and Conclusions	10
4.1	Project Impacts.....	10
4.1.1	Tongass Narrows.....	10
4.2	Government Creek	16
4.3	Airport Creek	16
4.4	Other Anadromous Waterways	17
4.5	Cumulative Effects.....	17
5.0	Conservation Measures	17
6.0	References	20

List of Tables

Table 1: Potential Impacts on Essential Fish Habitat.....	2
Table 2: Essential Fish Habitat Species in Project Area	4
Table 3: Quantities of Fill, Dredging, and Other EFH Impacts	12

1.0 Project Description

1.1 Location

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Highway Administration (FHWA), is preparing an Environmental Impact Statement to assess alternatives to improve transportation access between Revillagigedo Island and Gravina Island. The two islands are separated by Tongass Narrows, a 13-mile-long waterway that varies in width from ¼ mile to 1 mile. Pennock Island lies within the Narrows and divides the southern portion into East Channel and West Channel. Access between the two islands is currently provided via ferry service. The Gravina Access Project area is located in the Ketchikan Gateway Borough (Borough) in southeast Alaska, about 680 miles north of Seattle, Washington, and 235 miles south of Juneau, Alaska. Most of the Borough's 14,000 residents live on Revillagigedo Island (on the eastern side of Tongass Narrows), whose major cities are Ketchikan and Saxman.

1.2 Proposed Action and Impact Summary

This project is one of 17 high-priority infrastructure projects in the State of Alaska to be federally funded under the Federal Transportation Equity Act for the 21st Century (TEA-21), enacted in 1998. The Act authorizes approximately \$20 million for construction of a bridge joining Gravina Island to the community of Ketchikan on Revillagigedo Island.

The proposed project would consist of constructing a bridge (or two bridges, one each over East and West Channels) or ferry terminals, along with associated roadways. The project would require fill or bridge piers or dock pilings in Tongass Narrows regardless of whether a ferry or bridge alternative is selected. The roads associated with the bridges or ferry terminal would require bridge crossings over anadromous fish streams. Figure 1 shows the anadromous fish streams in the project area and the project alternatives being evaluated. In addition to any crossing of Tongass Narrows, all build alternatives would require a bridge crossing at two channels of Airport Creek, and Alternatives G3, F1, and F3 would require a bridge crossing at Government Creek. Alternatives F1 and F3 also would require a bridge crossing at an unnamed creek south of Government Creek, and a culvert crossing in a second unnamed anadromous fish stream (Figure 2). These crossings would avoid permanent loss of EFH by use of clear-span bridges or use of culverts designed per DOT&PF agreement with the Alaska Department of Fish and Game (ADF&G) specifically for fish passage

Alternative F3 also includes widening to improve navigational clearances in West Channel. This modification of West Channel would require blasting and dredging along a 2,000-foot-long segment of the channel. Approximately 59,000 cubic yards of surficial sediment would be removed without blasting. Below that material, approximately 125,000 cubic yards of fractured rock and bedrock would require blasting before removal by dredge. All material removed would be disposed of at a pre-approved marine location. Channel widening would impact intertidal and subtidal habitat in areas adjacent to Gravina and Pennock Islands (Table 1). The associated cross-sections are shown in Figure 3, and the areas of the West Channel to be widened are shown on Figure 4. To remove the rock by blasting, holes would be drilled into the rock at 10-foot intervals as deep as needed to pack the explosives to direct the force of the blast into the rock.

The ferry alternatives (G2, G3, and G4) would also require dredging in Tongass Narrows to produce adequate water depths for ferry docking (Figure 5). Alternative G2 would require the removal of approximately 1,400 cubic yards of material near the proposed south terminal. Alternative G3 would require the removal of approximately 15,200 cubic yards of material near both the proposed north and south terminals. Alternative G4 would require the removal of approximately 18,600 cubic yards of

material near the north and south terminals. All bridge and ferry alternatives would likely require pile driving using a vibratory hammer to advance the steel pile through the existing sediment to rock.

Essential Fish Habitat (EFH) is defined in Section 2. Table 1 shows the acreage of EFH affected for each alternative, based on preliminary engineering design. This report assesses potential impacts to EFH by project alternatives and recommends conservation measures to avoid, minimize, or offset impacts to EFH.

TABLE 1: POTENTIAL IMPACTS ON ESSENTIAL FISH HABITAT

<i>Type of EFH</i>	<i>Bridge Alternatives¹</i>						<i>Ferry Alternatives²</i>			
	<i>No-Action</i>	<i>C3(a)</i>	<i>C3(b)</i>	<i>C4</i>	<i>D1</i>	<i>F1</i>	<i>F3³</i>	<i>G2</i>	<i>G3</i>	<i>G4</i>
Marine EFH (approximate acreage)										
Dredging ³	0	0	0	0	0	0	16.0	0.20	2.14	1.22
Shading ⁴	0	0	0.3	0	0	0	0.1	0.5	1.6	0.3
Filling	0	6.1	6.5	6.7	4.1	0	0	0	0	0
Pier Area ⁵	0	0.13	0.21	0.13	0.18	0.16	0.16	0*	0*	0*
Marine Total⁶	0	6.3	7.1	6.9	4.3	0.2	16.2	0.7	3.8	1.6
<i>the following three lines indicate subsets of the marine total shown above</i>										
Eelgrass	0	0.02	0.00	0.04	0.00	0.02	0.03	0.08	0.29	0.00
Kelp	0	2.79	2.99	2.75	1.64	0.02	3.01	0.29	1.36	1.01
Saltmarsh	0	0	0	0	0	0	0	0.1	1.70	0
Freshwater EFH (number of crossings)										
Stream Crossings⁷	0	2	2	2	2	5	5	2	3	2

¹ Bridge Alternatives:

Alternative C3(a) = 200' Bridge between Signal Road and South of Airport Terminal
 Alternative C3(b) = 120' Bridge between Signal Road and Airport Terminal
 Alternative C4 = 200' Bridge Between Tongass Avenue (North of Cambria Drive) and South of Airport Terminal
 Alternative D1 = 120' Bridge Between Tongass Avenue (near Existing Ferry) and Airport Terminal
 Alternative F1 = Bridges (200' East and 120' West) Between Tongass Avenue and Airport, via Pennock Island
 Alternative F3 = Bridges (60' East and 200' West) Between Tongass Avenue and Airport, via Pennock Island

² Ferry Alternatives:

Alternative G2 = Ferry Between Peninsula Point and Lewis Point
 Alternative G3 = Ferry Between Downtown and South of Airport
 Alternative G4 = Ferry Between New Terminals Adjacent to Existing Ferry Terminals

³ Assumes channel modification would be required for F3. Areas shown as dredged would not permanently be lost as EFH.

⁴ Area that is covered by over-water structures fewer than 30 feet above MHHW, both for ferry docks and the low portions of bridge alternatives. Ferry loading transfer bridge assumed to be 24' x140'; floating barge 24' x60'; apron 24' x24'.

⁵ Bridge alternatives include piers 30'x30'. Ferry alternatives include small-diameter pilings, but these are not calculated. The impact of ferry pilings is included under the shaded area (two lines above).

⁶ Marine Total is the total of the first four lines of the table. Impacts include loss of habitat and change in habitat function. Eelgrass, kelp, and saltmarsh impacts are a subset of this total. Total is rounded up to the next tenth acre.

⁷ Number of anadromous fish streams shaded by bridge or covered with culvert. No permanent loss of EFH is anticipated at these locations.

2.0 Background Information

2.1 Magnuson-Stevens Fishery and Conservation Management Act

The Magnuson-Stevens Fishery and Conservation and Management Act (MSFCMA) defines EFH as:

“...waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.... For the purpose of interpreting the definition of essential fish habitat, ‘waters’ include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; ‘substrate’ includes sediment, hard bottom, structures underlying the waters, and associated biological communities; ‘necessary’ means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and ‘spawning, breeding, feeding, or growth to maturity’ covers a species’ full life cycle.”

-50 CFR 600.10

The MSFCMA directs federal agencies to consult with the National Marine Fisheries Service (NMFS aka NOAA Fisheries) when any of their activities may have an adverse effect on EFH. According to Section 600.810 of Subpart J of the MSFCMA, an adverse effect is “any impact which reduces quality and/or quantity of EFH.” This section also notes that “adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, or reduction in species’ fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.”

2.2 DOT&PF and NMFS Agreement of EFH Consultations

In accordance with a November 3, 1999 DOT&PF and NMFS (now referred to as NOAA Fisheries) agreement on EFH consultations (Appendix A) for projects involving an EIS, DOT&PF, on behalf of the FHWA, has determined that this project may cause permanent and temporary adverse effects on EFH. Placement of bridges for stream crossings may cause temporary adverse effects on EFH. Dredging, blasting, and pile driving would also cause permanent loss or alteration of EFH.

3.0 Affected Essential Fish Habitat

Tongass Narrows is designated as EFH under the MSFCMA for 11 species of ground fish and 5 species of Pacific salmon. Most are primarily late juveniles and adults, and may use the Narrows as a migratory corridor to other rearing areas in nearby bays and intertidal areas. In addition to the marine habitat of Tongass Narrows, anadromous fish streams documented by the Alaska Department of Fish and Game (ADF&G) in the Anadromous Waters Catalog (ADF&G 1998) are designated as EFH in the project area. These include Government Creek, Airport Creek (main stem and its tributary), and two unnamed streams (Figure 2). These waterways are defined as anadromous fish streams, which are those streams necessary for salmon spawning, breeding, feeding, or growth to maturity (NMFS 1998).

3.1 Species

The following paragraph and Table 2 present EFH data obtained from NOAA Fisheries through telephone conversations, response letters, and the NOAA Fisheries EFH web site. A response letter received in October 1999 (and confirmed in 2003) indicated these 16 species as having EFH within Tongass Narrows (see Appendix B for copy of letter). All 16 species may be found within the current project area that includes Tongass Narrows and several anadromous streams. Table 2 shows the life stages of each species as they are found within the project area.

Consultation with the NOAA Fisheries established that there is EFH for the following fish species in the project area: arrowtooth flounder (*Atheresthes stomias*), dusky rockfish (*Sebastes ciliatus*), Pacific cod (*Gadus macrocephalus*), Pacific ocean perch (*Sebastes alutus*), shortraker rockfish (*Sebastes borealis*), rougheye rockfish (*Sebastes aleutianus*), sablefish (*Anoplopoma fimbria*), sculpins (*Cottidae* spp.), skates (*Raja* spp.), walleye pollock (*Theragra calcogramma*), yelloweye rockfish (*Sebastes ruberrimus*), and all five Alaskan salmon species (*Oncorhynchus* spp.). Tongass Narrows supports habitat for all five Alaskan salmon species, which are likely to occupy the Narrows at various times of the year for feeding and migration. The anadromous fish streams in the project footprint contain three species of salmon: pink, coho and chum salmon (NMFS 1999).

Many of the species with EFH in the project area are of high commercial value and support the local and state economy through commercial and sport fisheries. Ketchikan's commercial fishing industry generates more than \$90 million annually and provides more than 1,500 full-time jobs (USKH 2000).

TABLE 2: ESSENTIAL FISH HABITAT SPECIES IN PROJECT AREA

Ground Fish Species	Egg	Larvae	Late Juvenile	Adult	Spawning
Pacific Ocean Perch			X	X	
Yelloweye Rockfish			X	X	
Shortraker			X	X	
Rougheye Rockfish			X	X	
Dusky Rockfish			X	X	
Walleye Pollock	X			X	
Sablefish			X	X	
Pacific Cod			X	X	
Arrowtooth Flounder			X	X	
Sculpin spp.			X	X	
Skates spp.			X	X	

Salmon Species	Egg and larvae – fresh water	Juvenile – fresh water	Juvenile – estuarine	Juvenile – marine	Adult – marine waters	Spawning – fresh water only
Coho salmon	X	X	X	X	X	X
Chum salmon	X	X	X	X	X	X
Pink salmon	X	X	X	X	X	X
Chinook salmon*				X	X	
Sockeye salmon*				X	X	

* Both species are found only in Tongass Narrows within the project area; however, they do occur as freshwater eggs, larvae and juveniles in other freshwater streams in the Ketchikan area.

3.2 General Habitat Description of Tongass Narrows

Tongass Narrows is generally characterized by strong tidal currents and by steep bedrock or coarse gravel-cobble-boulder shoreline. Lower intertidal and shallow subtidal areas are often sandy or mixed gravel, sand, and shell, with varied amounts of silt. At other areas, however, such as at rocky points and along the northwestern shore of Pennock Island, bedrock slopes steeply to subtidal depths. Subtidal habitats, like those in the intertidal zone, are a mix of bedrock outcrops or ledges, boulder-cobble slopes

and, where lower slopes permit, sandy gravel bottoms, often mixed with significant amounts of shell debris.

Several small natural coves and areas protected by constructed breakwaters provide wave and current protection for marine habitats with sand or gravel bottoms. Extensive areas of riprap bank protection and filling occur along the northeastern shoreline of the City of Ketchikan. Construction of numerous buildings on pilings over the intertidal and shallow subtidal zone has significantly modified the shorelines in these areas. Human-induced shoreline protection activities have similarly modified about a mile of the shoreline of Gravina Island in the vicinity of the airport and airport ferry terminal.

Prey Species. In areas where natural coarse gravel-cobble-boulder, sand, mud, or mixed-fine shorelines occur, lower beaches contain diverse microhabitats providing prey for ground fish and salmonid species. Fieldwork completed in the intertidal zone in January and July 2000 (HDR 2001) identified 136 plant and 151 animal taxa. Ground fish prey includes a variety of epibenthic crustaceans, especially amphipods and several crab and shrimp species, as well as infaunal clams, gastropods, and polychaete worms. Diets of young salmonids include a variety of smaller crustaceans (haracticoids, mysids, cumaceans), larval fish, and terrestrial insects. Diets of subadult and adult salmon vary among species, but generally, are dominated by forage fish (herring, smelt, sand lance) and larger pelagic and planktonic invertebrates. Huge schools of herring, smelt, capelin, and Pacific sand lance collectively provide the food base for salmon. Pacific herring spawn during the spring in eelgrass or rockweed beds at the north end of Gravina Island (Walker, 2000). The shorelines of Tongass Narrows provide rearing habitat for juvenile salmonids migrating out of area streams during the spring. Low gradient gravel and sand beaches produce an abundance of epibenthic zooplankton that provide a key prey base for juvenile pink, chum, and chinook salmon (Groot and Margolis, 1991). At low tides, extensive eelgrass beds along the narrows also produce large numbers of prey items and provide refuge for juvenile salmonids against predation by birds and larger fish.

3.3 Ground Fish Species Descriptions

Specific descriptions of the non-salmonid species, some of which may be found within Tongass Narrows, and their life stages are included below. References to habitat locations indicate the following depth associations: inner (1-50 meters), middle (50-100 meters), and outer (100-200 meters) shelf regions, and upper (200-1,000 meters) and lower (>1,000 meters) slopes and basin (>3,000 meters) (NMFS 1999). No specific surveys have been identified that document the use of project area waters by these species. However, unconsolidated bottom areas of silt, sand, and gravelly sand along the slopes of Tongass Narrows are expected to support a variety of ground fish. Rockfish are more likely to use boulder, ledge, and bedrock outcrops within the Narrows.

- Arrowtooth Flounder
Arrowtooth flounder spawn during December-February at depths of 100-360 meters (DiCosimo 2001). Pelagic (open seas) eggs and larvae inhabit all areas of the continental shelf, though predominantly inhabiting only the inner and middle shelf regions. Juveniles and adults are demersal (bottom dwelling) in gravel and muddy sand. Juveniles typically inhabit shallow areas until they are about 10 centimeters long. During winter, the flounder migrate to shelf margins and upper continental slopes to avoid cold temperatures (NPFMC 1998b). This species is a likely inhabitant of Tongass Narrows.
- Dusky Rockfish
Dusky rockfish adults are found along the outer shelf, upper slope, and nearshore waters of southeast Alaska, typically in areas with rocky shores at depths less than 50 meters. Juveniles inhabit inner and middle slopes. This species may be found in Tongass Narrows. Preferred

substrate for both adults and juveniles is gravel, cobble, or boulder. Juvenile dusky rockfish have been captured in nearshore eelgrass and kelp beds. Adults are semi-demersal/semi-pelagic (NPFMC 1998b).

- Pacific Cod

Pacific cod are demersal and concentrate on the shelf edge and upper slope (100-200 meters) in the winter and spring where they overwinter and spawn from January through April and move to shallower waters (<100 meters) in the summer (DiCosimo 2001). This species is a likely inhabitant of Tongass Narrows. They prefer mud, sandy mud, muddy sand, or sand in deep waters (Morrow 1980). Pacific cod eggs are found on the inner and middle continental shelf. Pacific cod larvae are epipelagic (zone where photosynthesis can occur) in the upper 45 meters of the ocean. Juveniles can be found in water 60-150 meters deep (NPFMC 1998b). Juvenile Pacific cod have been captured in nearshore eelgrass and kelp beds (NOAA Fisheries 2003).

- Pacific Ocean Perch

Adult Pacific Ocean perch (POP) are found along outer shelf and upper slope. They migrate into deeper water during fall and winter to spawn, and then move to shallower depths to feed during spring and summer. Juveniles are found in the inner, middle, and outer shelves, and upper slope. Larval stages are found in the same areas as juveniles plus in the lower slope and basin. As a result of this life history pattern, it is unlikely that significant numbers of POP occur in Tongass Narrows. Preferred habitat for adults includes gravel, pebble, and cobble. Juveniles generally prefer the same habitats as adults, but will also use areas with boulders (DiCosimo 2001).

- Shortraker and Rougheye Rockfish

Adults inhabit waters of the outer continental shelf and continental slope (DiCosimo 2001). Juveniles are found in the middle and outer shelves. As a result of this life history pattern, it is unlikely that significant numbers of these species occur in Tongass Narrows. Adults use habitats where mud, clay, silt, sand, gravel, pebble, cobble, boulder, and bedrock are present. The softer substrates (sand or mud) generally have the highest adult densities; hard substrates (bedrock, cobble or pebble) usually have the lowest densities. Habitats with steep slopes and frequent boulders are used more than habitats with gradual slopes and few boulders. Juveniles may occupy shallower habitats than adults (NPFMC 1998b).

- Sablefish

Adults and late juveniles inhabit the deeper waters of the continental shelf, the slope, and the deep-water coastal fjords. Most adults are typically found in depths of 366–914 meters. As a result of this life history pattern, it is probable that sablefish occur in Tongass Narrows. Adult and late juvenile sablefish are pelagic and may be found in waters over any substrate (NPFMC 1998b). Spawning occurs in pelagic waters at a depth of 300–500 meters in the spring (McFarlane 1997).

- Sculpin spp

Sculpins are bottom-dwelling fish that live in tide pools or in shallow or deep marine waters, and occasionally can be found in freshwater. Adults and late juveniles can be found in the middle shelf regions. Sculpins are known to use a wide range of habitats, including intertidal pools and all shelf habitats, e.g., mud, sand, gravel, etc. (NPFMC 1998b). Several species of sculpin have been seen in intertidal and subtidal surveys in Tongass Narrows.

- Skates spp
Juvenile and adult skates can be found in the middle shelf regions. Skates are known to use a broad range of substrate types (mud, sand, gravel, and rock) and can typically be found in the lower portion of the water column (NPFMC 1998b). It is probable that skates occasionally inhabit the deeper waters of Tongass Narrows.
- Walleye Pollock
Both adults and eggs are found in the outer shelf regions. Walleye pollock and their eggs are pelagic; therefore, they may be sighted in waters over any substrate. All life stages of walleye pollock are known to use the Tongass Narrows as habitat. Pollock larvae are pelagic and inhabit the middle and outer continental shelf. Juvenile pollock inhabit the inner, middle, and outer continental shelf and oceanographic features like basins, fronts, and upwellings. Adults are semi-demersal (near the ocean surface to 200 meters). Adults congregate where food is concentrated in middle and outer continental shelf areas (NPFMC 1998b).
- Yelloweye Rockfish
Adults and juveniles are both found in the middle and outer shelves and upper slope. Habitat for both consists of bays, estuaries, and island passes. This species is a likely inhabitant of Tongass Narrows. Both life stages are demersal, and are often found in areas with rock, coral, and cobble. High concentrations of rockfish are found in areas with high relief containing refuge spaces such as overhangs, crevices, and caves (NPFMC 1998b).

3.4 Anadromous Fish Waterways Habitat Descriptions

3.4.1 Government Creek

Species

According to the ADF&G Anadromous Waters Catalog (ADF&G 1998), Government Creek (ADF&G No. 101-47-10400) provides habitat considered to be EFH for coho, chum, and pink salmon. The mouth of Government Creek provides spawning habitat for all three salmon species, and the headwaters provide rearing habitat for juveniles.

Habitat

In the project area, Government Creek enters Tongass Narrows through a shallow gravel-cobble-bottomed stream channel in a small V-shaped embayment. The stream channel bottom is covered with a dense growth of filamentous brown alga (*Pilayella littoralis*). Lower stream banks support dense rockweed; in muddy pockets adjacent to the stream, softshell clams (*Mya arenaria*) are abundant. Finer sediments at higher elevations (e.g., > +13 ft MLLW) have a well-developed saltmarsh grouping. Dominant plants in the lower saltmarsh are *Carex* sp., *Glaux* sp., and *Plantago* sp.; higher elevations have *Potentilla* sp., *Deschampsia* sp., and *Juncus* sp. Higher areas with coarse sand and gravel, especially to the south toward East Clump Island, support patches of *Salicornia virginica* and a backshore grouping mixed with salt-tolerant grasses and herbs (HDR 2001).

3.4.2 Airport Creek

Species

According to the ADF&G Anadromous Waters Catalog (ADF&G 1998), Airport Creek (ADF&G No. 101-47-10450-2002 and No. 101-47-10450) provides spawning habitat for coho and pink salmon.

Habitat

In the project area, Airport Creek flows directly into a productive estuary of Tongass Narrows. Airport Creek consists of two channels that merge into one near the estuary. The upper intertidal area around the creek mouth consists of a relatively flat bench dominated at lower elevations by *Salicornia* and *Puccinellia*. At somewhat higher elevations, taller species such as the sedge *Carex*, velvet grass (*Holcus lanata*), and tufted hairgrass (*Deschampsia dominate*). Gravelly areas adjacent to the stream channel support patches of *Honkenya peploides*, and higher-elevation sand and gravel have a dense growth of dune grass.

The outer reaches of this estuary support eelgrass beds that provide habitat and food for juvenile salmon. Airport Creek consists of a shallow gravel-cobble-bottomed stream channel with small cascades. Areas farther upslope are characterized with a boulder-cobble bottom and steep banks. The riparian vegetation surrounding the creek consists of Sitka spruce (*Picea sitchensis*) and cedar-hemlock (*Chamaecyparis* sp. and *Tsuga* sp.) forest with an open shrubby understory (HDR 2001).

3.4.3 Other Anadromous Fish Waterways

Species

According to the ADF&G Anadromous Waters Catalog (ADF&G 1998), two unnamed creeks (ADF&G No. 101-47-10380 and No. 101-47-10350) provide spawning habitat for coho salmon in the project area.

Habitat

The two unnamed creeks are known spawning habitat for coho salmon (*Oncorhynchus kisutch*). Both creeks are confined to a low flow, low gradient, narrow channel that flows directly into Tongass Narrows. The creeks are very narrow, ranging from 3 to 5 feet wide or less in most locations. The depths of the creeks vary from shallow (1 foot) to 2 to 3 feet in some locations. Both can be ephemeral in some locations, depending on rainfall. The creeks have overhanging riparian vegetation consisting of Sitka spruce and cedar-hemlock forest with a shrubby understory, which likely provide rearing habitat for juvenile salmon (HDR 2001).

Marine Nearshore

The shorelines of Tongass Narrows provide rearing habitat for juvenile salmonids migrating out of area streams during the spring. Low gradient gravel sand beaches produce an abundance of epibenthic zooplankton that provide a key prey base for juvenile pink, chum, and chinook salmon (Groot and Margolis 1991). At low tides, extensive eelgrass beds along the narrows also produce large numbers of prey items and provide refuge for juvenile salmonids against predation by birds and larger fish. As they grow, young salmon tend to move offshore into deeper waters while remaining in the upper portion of the water column. These fish feed on larger planktonic and pelagic prey including larval fish and smaller forage fish.

3.5 Salmonid Species Descriptions

- Coho Salmon

The NOAA Fisheries EFH web site (NMFS 2002) shows that coho salmon (*O. kisutch*) have EFH in all ADF&G anadromous streams that are crossed by the project and in Tongass Narrows. Coho salmon enter spawning streams from July to November, usually during periods of high runoff. The eggs hatch early in the spring, where the embryos remain in the gravel using the egg yolk until they emerge in May or June. Juvenile coho spend one to three winters in streams and may spend up to five winters in lakes before migrating to the sea as smolt (ADF&G 2002). Coastal streams, lakes, estuaries, and tributaries to large rivers all provide coho rearing habitat.

Coho juveniles may also use brackish-water estuarine areas in summer and migrate upstream to fresh water to overwinter. They spend about 16 months at sea before returning to coastal areas and entering fresh water to spawn (NPFMC 1998).

- Chum Salmon

The NOAA Fisheries EFH web site (NMFS 2002) shows that chum salmon (*O. keta*) have EFH in Government Creek and Tongass Narrows. Chum salmon return to spawn as 2- to 7-year olds. Chum salmon fry, like pink salmon, do not overwinter in the streams but migrate out of the streams directly to the sea shortly after emergence (ADF&G 2002). This outmigration occurs between February and June, but most fry leave the streams during April and May. Chum salmon tend to linger and forage in the intertidal areas at the head of bays. Estuaries are important for chum salmon rearing during spring and summer. Chum salmon spawn between June and November in gravel in streams, side-channel sloughs, and intertidal portions of streams when the tide is below the spawning grounds (NPFMC 1998).

- Pink Salmon

The NOAA Fisheries EFH web site (NMFS 2002) shows that pink salmon (*O. gorbuscha*) have EFH in Government Creek, Airport Creek, and Tongass Narrows. Pink salmon are distinguished from other Pacific salmon by having a fixed two-year life span. Because of the life span, pink salmon spawning in a particular river system in odd and even years are reproductively isolated from each other and have developed into genetically different lines (NPFMC 1998). Adult pink salmon enter spawning streams between late June and mid-October. They spawn within a few miles of the coast, and spawning within the intertidal zone or the mouth of streams is very common. Shallow riffles where flowing water breaks over coarse gravel or cobble-size rock and the downstream ends of pools are favored spawning areas. The eggs hatch in early to mid-winter and the fry swim up out of the gravel and migrate downstream into salt water by late winter or spring (ADF&G 2002).

- Chinook Salmon

The NOAA Fisheries EFH web site (NMFS 2002) shows that chinook salmon (*O. tshawytscha*) have EFH in Tongass Narrows, but not in any of the creeks or streams in the project area. Adult chinook salmon are found over a broad geographic range, encompassing different ecotypes and very diverse habitats in Southeast Alaska. Chinook salmon generally spawn from mid-June to mid-August in waters ranging from a few centimeters deep to several meters deep. Eggs hatch in the late winter or early spring and juveniles typically remain in fresh water for at least one year before migrating to the ocean in the springtime (ADF&G 2002). Chinook salmon spend one to six years at sea before they return to freshwater streams to spawn (NPFMC 1998). Adults return to spawning streams from July through September (Morrow 1980).

- Sockeye Salmon

The NOAA Fisheries EFH web site (NMFS 2002) shows that sockeye salmon (*O. nerka*) have EFH in Tongass Narrows, but not in any of the creeks or streams in the project area. Sockeye salmon exhibit a greater variety of life history patterns than other Pacific salmon, and are known to use lake-rearing habitats in the juvenile stages (NPFMC 1998). Sockeye salmon generally spawn in late summer and autumn. They use a wide variety of spawning habitats such as rivers, streams, and upwelling areas along lake beaches. Eggs hatch during the winter and the young salmon move into the rearing areas. In systems with lakes, juveniles usually spend one to three years in fresh water before migrating to the ocean in the spring as smolts. However, in systems without lakes, many juveniles migrate to the ocean soon after emerging from the gravel (ADF&G 2002).

4.0 Project Impacts and Conclusions

4.1 Project Impacts

Construction activities within coastal watersheds and in coastal marine areas will impact EFH. These activities may adversely impact marine resources directly and indirectly through habitat loss and/or modification. Other impacts that may occur as a result of the proposed project include the following: runoff from roadways, increased human access (e.g., for fishing), and cumulative development of shoreline property. Locations and descriptions of the anadromous fish stream crossings, by alternative, are shown in Figure 1. Individual waterway impacts by the proposed project alternatives are described below.

4.1.1 Tongass Narrows

General Impacts

All project alternatives would require placement of either bridge pier footings or pilings for ferry facilities in shallower waters (e.g., shallower than -50 feet MLLW) near the shoreline of Tongass Narrows. Table 3 shows the required number of piers, water body crossings, amount of roadway fill for Tongass Narrows, and dredging quantity for each alternative. Given the small area that would be required for bridge piers and ferry terminal pilings, the permanent effects on EFH are minor. Pilings for bridge piers and ferry terminal will be placed as drilled shafts into Tongass Narrows using a reverse rotary drill.

All alternatives may require pile driving to penetrate any existing sediment in the area and enable the pile to bear on or within rock. Geophysical surveys suggests that this soil sediment may be as much as 20 feet thick. In these locations, a vibratory hammer would be used to advance the steel pile (probably 18 to 30-inches in diameter) through the existing sediment until it reached bedrock and then drilling would be employed to penetrate the rock and/or install the piling or rock anchors in the rock formation.

The reverse rotary drill for bridge pier foundations will advance large diameter drilled shafts into the rock bottom by grinding or coring about 10 or 12 feet diameter holes through the rock at the bottom of the channel at each pier location. Four to six shafts may be drilled to support each pier. Each shaft takes approximately one week to complete. Shaft drilling will be conducted by first installing a large diameter steel casing through the water and seating it into the bottom material. It is not known at this point whether the casing will be dewatered or whether the water will be left in the casing (most likely the latter, especially where the deeper water is present). The shaft will then be drilled through the casing to depths on the order of 50 to 100 feet into soil and rock, and then completed by lowering a reinforced steel cage into the shaft hole and filling the hole and casing to above the water line with concrete. These 4 to 6 shafts will then be cast into a single pier cap for supporting the above water portion of the pier and bridge structure.

All shaft and pile construction methods will entail barge-mounted equipment to have the least impact on marine epifauna. The barge-mounted reverse rotary drill uses wet construction technology to draw the rock drill cuttings as slurry up through the middle of the drill shaft onto the barge where it enters a settling basin and is disposed of according to normal dredge disposal regulations. Refer to Table 3 for impacts to EFH by alternative for bridge or pier construction.

No site-specific surveys of fish likely to be present in the vicinity of drilling or pile driving are available. However, fish types that will likely be present include demersal (e.g., flatfish, cottids, rockfish, gadids) and pelagic (salmonids, clupeids, embiotocids, greenling) species. Of these, fish with closed swim

bladders (physoclistous species – e.g., rockfish, gadids) are known to be most vulnerable to sharp changes in acoustic energy (e.g., from blasting), while those with open swim bladders (physostomous species – e.g., salmonids) are less affected; fish lacking a swim bladder (e.g., cottids, flatfish) are the least susceptible.

Using reverse rotary drilling and a vibratory hammer will have less impact on fish than use of an impact hammer to drive piles, which is known to have significant adverse effects on fish. The small amount of pile driving that may be necessary would be in sediment, and conservation measures would reduce the harmful vibratory impacts of pile driving by using a vibratory hammer instead of an impact hammer, and by driving near-shore piles at low tide only. Peak sound pressures generated by rotary drilling would be comparable to or less than that generated by clamshell dredging, and well below levels known to be harmful to fish and marine life. Sound frequencies associated with drilling would be generally higher pitched and sound pressure levels would be steadier than would clamshell dredging. As a result, there likely would be less disruption of fish and mammal movement and feeding patterns than would occur during dredging.

There would be some permanent loss of eelgrass beds from placement of fill in Tongass Narrows in Alternatives C3a, C3b, C4, and D1. Placement of fill would result in a direct loss of EFH in Tongass Narrows and could modify current patterns and water circulation slightly by changing the direction or velocity of water flow, or changing the dimensions of a water body. These changes to the water dynamics could result in increased deposition of suspended particulates, or increased bed scour, either of which could reduce the area of habitats available for spawning, breeding, feeding, or growth to maturity of fish for which EFH has been designated (NMFS 1998). Piers and the bridge structures could eliminate or slow the growth of eelgrass beds by shading, which indirectly would negatively impact EFH.

Ferry alternatives could result in substantial scour of the bottom of the channel in areas under and near the loading ramps. Propeller scour caused by power reversal during docking would eliminate existing unconsolidated surficial sediments and associated biota over a small area (assumed 0.1 acres for each ferry docking area) shoreward of the berth.

Table 3 shows water body crossings, piers, and roadway fill impacts to Tongass Narrows from bridge or pier construction, and dredging quantities.

TABLE 3: QUANTITIES OF FILL, DREDGING, AND OTHER EFH IMPACTS

	<i>C3(a)</i>	<i>C3(b)</i>	<i>C4</i>	<i>D1</i>	<i>F1</i>	<i>F3</i>	<i>G2</i>	<i>G3</i>	<i>G4</i>
EFH/Total Number of Water Body Crossings ¹	2/8	2/8	2/8	2/8	5/14	5/14	2/8	3/10	2/8
Piers in Tongass Narrows (Number)	5	7	5	6	6	6	0	0	0
Fill in Tongass Narrows (Cubic Yards, Thousands) ²	280	140	280	295	0	0	0	0	0
Dredging Quantities (Cubic Yards)	0	0	0	0	0	184,000 ³	1,400	15,200	18,600

¹ Indicates the total number of stream crossings (not including Tongass Narrows) and the number of these crossing that are of anadromous fish streams (such streams are EFH). No permanent loss of EFH would occur because bridge and culvert design would preserve EFH.

² For bridge alternatives, fill quantities shown do not include the bridge piers themselves.

³ Of this total, approx. 125,000 cy of solid and fractured rock would be loosened by blasting and removed by clamshell dredge. For the balance, surficial sediments would be removed by dredge without blasting.

Impacts of Pier Construction and Channel Modification

In-water blasting might be necessary for all alternatives to prepare the foundations for in-water piers or pilings for bridge and ferry alternatives. If blasting were required to prepare the foundations for piers or pilings, the conservation measures for blasting in Chapter 5.0 would be implemented. In addition, if blasting is required, it will be performed such that ground vibration (particle velocity) does not exceed 2.0 inches per second and peak water overpressure (instantaneous pressure change) does not exceed 2.7 pounds per square inch. The project will employ monitoring devices to ensure adherence to these standards. Currently only Alternative F3 has the potential to require substantial blasting. However, dredging for the ferry alternatives may require a small amount of blasting. If blasting is necessary for the ferry alternatives, it would last 2-3 days and would have localized impacts that would be of minimal significance in relation to the large areas of similar habitats available in Tongass Narrows. The types of charges that would be used for blasting would be common explosives used in underwater blasting. The amount of explosives needed to generate 1 ton of rock would be approximately 1 pound of explosive. The amount of in-water blasting that may be required has not been determined for any of the alternatives. The depth of detonation, weight of the charge, and detonation velocity are not known at this time. This information will be determined during the final design phase and will be addressed in project permitting. Shock waves from blasting can be expected to travel, and to be sensed by marine organisms up to a few miles, depending on the topography of the area. In addition, underwater blasting can be expected to cause heavy mortalities of fish within 100 meters, with lesser numbers of fish killed with greater distance. The confined nature and rocky shorelines of the West Channel may focus, rather than dissipate acoustic energy, extending the area of impact up and down the channel (Houghton and Munday 1987).

Research conducted by the U.S. Army Corps of Engineers indicates that the lethality of an explosive is directly related to its detonation velocity. Detonation velocity is the speed with which a blasting agent ignites. The more rapid the detonation velocity is, the more abrupt the resultant hydraulic pressure gradient will be, and the more difficulty fish have adjusting to the pressure changes. Investigations have demonstrated that the swim bladder is the most frequently damaged organ. Laboratory tests have demonstrated that small negative pressures can injure fish swim bladders, and negative pressures of only one atmosphere (101.4 kPa) can kill marine fish. This is well below the pressure of most underwater explosions (Keevin et al.1997).

The distance from the blast at which lethal effects occur depends upon several variables including: the typical size (weight) of the fish species likely to be in the area, the depth of the fish, the depth of detonation of the charge, and the weight of the charge. Lethal ranges will be increased if the water is shallow (less than five times either the detonation depth or target depth, whichever is greater) or where the bottom is rocky (Keevin et al. 1997).

No site-specific studies have been conducted to describe fish populations potentially at risk at locations that would require blasting to provide necessary navigational depths. Nonetheless, the general nature of fish that may be present at each site can be deduced from the nature of the habitats present. Rocky habitats in Tongass Narrows likely support rockfish, which, because of their large swim bladders, would be expected to be highly susceptible to sound pressures generated by blasting, while cottids would be less susceptible. Adjacent soft bottom areas likely support flatfish species and skates that would be somewhat less vulnerable to blast effects because they lack swim bladders, and gadids that are known to be very susceptible. A number of other species may be present in the water column, depending on the time of year. These could include salmonids, forage fish, and some gadids, all of which would be very susceptible to blast effects (Houghton and Munday 1987).

Alternative F3 would require modification to West Channel to improve navigation clearances (see Figure 3). This alternative would widen the channel and modify the localized nearshore tidal flow regime slightly, but would not affect overall flow through West Channel. Altered hydrology in the channel would not significantly impact benthic assemblages or productivity outside of the area directly modified. Channel modification would require the removal of approximately 59,000 cubic yards of surficial sediment, which would be removed by dredging (not blasting), and 125,000 cubic yards of fractured rock and bedrock, which would require blasting to be removed (See Figure 3). The channel widening would consist of a combination of drilling, blasting, and dredging activities. The duration of these activities would be 1 to 3 months. Channel modification work would occur up to seven days a week with almost continuous disturbance from dredging and intermittent disturbance from blasting. Blasting, and dredging in the West Channel would remove approximately 16 acres of subtidal habitat from areas adjacent to Gravina and Pennock Islands (Table 1). This action would eliminate approximately 3 acres of existing kelp beds including *Nereocystis* and *Laminaria*, 0.03 acres of eelgrass beds, and would affect 0.75 acres of sea cucumber (*Parastichopus californica*) habitat in the immediate area (Figure 6 and Table 1).

Construction disturbance (blasting and dredging) will reduce the primary and secondary productivity of the West Channel during construction and for 1 to 2 years following channel expansion. During this time, forage resources for benthic feeders may be substantially reduced. This will reduce the flux of plant matter, smaller organisms, and the prey available for larger organisms on either end of the channel, where those animals were dependent for prey on plants or algae produced in the impacted area. This effect will be short term and likely would be immeasurable since few organisms would be dependent solely on prey produced in the impacted area.

The ferry alternatives would also require minor dredging in Tongass Narrows to produce adequate water depths for ferry docking (Figure 5). Use of a clamshell dredge is the most likely method of dredging for the ferry alternatives and F3 (See Temporary Impacts Section for discussion of clamshell dredges and possibility of entrainment). Alternative G2 would require the removal of approximately 1,400 cubic yards of material near the proposed south terminal (approximately 0.2 acres; Table 1). Alternative G3 would require the removal of approximately 15,200 cubic yards of material near both the proposed north and south terminals (approximately 2.14 acres total; Table 1). Alternative G4 would require the removal of approximately 15,200 cubic yards of material near the north and south terminals (1.22 acres; Table 1).

Where blasting is required for Alternative F3, and possibly for other alternatives, a barge mounted percussion drill would be used to drill holes for the explosive. The explosive would be set into the holes and detonated, and a clam bucket would be used to remove the debris. The debris would be placed onto the barge where it would enter a settling basin and be disposed of according to normal dredge disposal regulations. Disposal of dredged and blasted material would follow the Environmental Protection Agency's (EPA) Guidelines for disposing of dredged and blasted material (40 CFR Parts 220-238) (Ocean Dumping) and would be consistent with the regulations of Clean Water Act (CWA) Section 404(b)(1) [disposal of dredged materials into waters of the U.S.] and Marine Protection, Research, and Sanctuaries Act (MPRSA) Section 103. The disposal would be an "open water" ocean disposal and would require the use of locations be pre-approved by the EPA (MPRSA Section 102). Deepwater disposal of sediment removed from the West Channel would eliminate existing benthos in the disposal area. However, recolonization of disposal areas is expected to be rapid. The recurring use of a common disposal area by this and other projects would focus the impacts of this and the other projects in a localized area. Use of a deepwater disposal site would avoid impacting more productive shallow water areas.

Eelgrass is typically found to -20 feet MLLW in Southeast Alaska, and kelp to -60 feet MLLW (NOAA Fisheries 2003). It is unlikely that these communities would fully reestablish in the deeper depths that would result from the channel widening. Newly exposed soil and rock surfaces would be recolonized over a period of several years. Newly exposed rock at depths from the lower intertidal zone to about -20 feet MLLW would be recolonized by epibenthic biota similar to that seen at low tide levels on the existing west shore including red algae, kelp, and a variety of other small species. Subtidal rock will be colonized by a wide variety of invertebrates such as coral (*Balanophyllia elegans*), erect bryozoans (*Dendrobenia lichenoides*), scallop (*Chalmys hasata*), gastropods (*Scabrotrophon maltzani* and *Trichotropus cancellata*), white limpet (*Acmaea mitra*), sea peach (*Halocynthia auranthium*), and several other hydroids and bryozoans. A variety of red algae are expected to form an understory and large *Laminaria* species are expected to form an overstory. Bull kelp will recolonize at depths down to about -20 to -25 feet MLLW (HDR 2001). Red algae will form the deepest zone and may extend to -50 feet MLLW. Pockets of newly exposed sediment, and sediment that accumulates in rock crevices will be colonized by an infauna composed of a variety of polychaetes, crustaceans, bivalves, echinoderms, and other taxa (Jon Houghton, Pentec, pers. communication to Sirena Brownlee, HDR 2003). Because of the loss of some shallow water habitats, especially on the southwest side of the channel, overall productivity in the area would be less than current productivity in the existing shallower areas. The West Channel dredging accounts for the relatively higher area of impact shown for Alternative F3 in Table 1..

Temporary Impacts

Underwater drilling, pile driving for ferry terminals, and blasting activities would generate noise and vibration in the area. In addition, fine silts would be suspended in the water column by these activities. Turbidity plumes would be quickly carried downstream by the strong tidal current. The distance the turbidity plume moves from the point of origin would be dependent upon tides, currents, nature of the substrate, and other factors. Because of the strong tidal currents in the channel, intermittent generation of waterborne sediments, especially when released into deeper waters offshore, will be quickly dissipated with minimal effect on biota. While specific sampling of sediments that would require dredging has not been conducted, underwater video and side scan sonar surveys in the areas of proposed dredging indicate that sediments to be dredged would range from silts and silty sand to coarse gravel and sand. The dredging activities for F3 would occur at depths of water such that no intertidal or estuarine areas would be directly affected. Any adult or juvenile fish using the West Channel during this stage of construction could be adversely affected by the blasting and dredging, by direct mortality, damage from sound pressures released into the water, or entrainment in dredging equipment.

Vibration and noise from dredging operations may displace or otherwise harass both salmon and ground fish species in the Narrows. However, the areas being dredged are small relative to the cross section of the Narrows. Other construction impacts would be temporary, minimized, and mitigated by measures specified in Section 5.0. It is expected that construction activities in Tongass Narrows would last for approximately two to three years. During this time, work barges would be moving about, and anchoring in Tongass Narrows.

Placement of culverts in fish-bearing streams could temporarily impact anadromous fish by directly eliminating eggs incubating in the streambed, or by creating highly turbid water. Deposition of material downstream on incubating eggs could destroy them, and turbid water could interfere particularly with juvenile salmon. Therefore, any kind of in-stream work would be undertaken during work windows determined by permit to avoid critical times in the salmon life cycle.

Entrainment

It is generally accepted that clamshell dredges do not have the potential to entrain pelagic fish such as salmonids. Clamshell dredges have a lower incidence of entrainment than hopper and pipeline dredges, and if the dredging were conducted immediately following the blasting, it is likely that there would not be any live organisms in the debris (Miller 2003). Specifically, the clamshell bucket descends to the substrate in an open position. The force generated by the descent drives the jaws of the bucket into the substrate, which “bites” the sediment upon retrieval. During the descent, the bucket cannot trap or contain a mobile organism because it is totally open. Based on the operation of the clamshell dredge bucket, it is concluded that, if used for the proposed project, it would not entrain juvenile, subadult, or adult salmonids, or forage fish, although some entrainment of demersal fish and epibenthic invertebrates (e.g., crab) may occur.

Operational Impacts

Propeller scour during docking of ferries under the three ferry alternatives would eliminate existing unconsolidated surficial sediments down to about – 20 feet MLLW over an area of approximately 0.2 acres for each ferry alternative (assumes 0.1 acre per terminal).

Bridges or ferry ramps would partially shade littoral areas, reducing primary productivity and possibly limiting the distribution of some algae, while extending the distribution of other taxa. In addition, the presence of over-water structures (bridges, causeways, and ferry docks) might partially shade portions of the adjacent beach and subtidal bottom areas. The area under a dock or causeway would likely receive full-time shade, whereas the area under elevated bridge sections would not, because the shadow cast by structures high above the water would move across the water as the sun traverses the sky. Because the upper limits of many intertidal species, including eelgrass, are set by the degree of desiccation experienced, and because shading would reduce desiccation, shading by project structures may allow some species to extend their range upslope.

However, since lower limits of vegetative growth are set by light level, net loss of eelgrass or kelp productivity could result from the project if deeper portions of beds are shaded. If this occurs, eelgrass habitat area would be incrementally reduced reducing the area of refuge for migrating juvenile salmon, other small fish, and Dungeness crab. Reduced eelgrass productivity would decrease the eelgrass blade area available to support epiphytic crustaceans, which are an important food source for juvenile salmon.

Pilings and piers necessary to support bridges or nearshore components of the alternatives could alter the nearshore migration pathways of smaller juvenile salmonids (e.g., pink and chum salmon) or other marine

species in Tongass Narrows. Impacts could be reduced by locating nearshore components in a manner that leaves a nearshore migration corridor (e.g., down to at least -5 feet MLLW, near the extreme low-water line) clear of obstruction. Deeper piers or pilings would allow free passage of marine species migrating along shorelines and would develop an epifauna typical of natural deeper hard-bottom areas.

In addition to shading, over-water structures that create areas of darkened water can impede or delay long-shore migrations of juvenile salmonids. Studies in Washington State have shown that schools of juvenile chinook and chum salmon pause in their migration when encountering an over-water structure that creates a darkened area of water, such as a marginal wharf or wide pier (Pentec 1997). There is little expectation that an elevated bridge would create light conditions that would impede salmon migrations in the Tongass Narrows, although the low elevation causeways along the northeast edge of the airport under the northern bridge alternatives (C3a, C3b, C4) could cause fish to alter their migration corridors.

Runoff from new roads, if not collected and treated, would create temporary, localized increases in water turbidity of drainage pathways and in the Tongass Narrows. In addition, some contaminants such as oil and metals from vehicle brake dust are also likely to reach the drainage pathways and Tongass Narrows. In the climate of Ketchikan, frequent rainfall would limit accumulation of these materials on roadways. Thus, it is unlikely that these materials would run off the bridge or roadways in concentrations that would create conditions harmful to biota; again, the high circulation rates in Tongass Narrows would quickly dilute and dissipate any releases. In addition, road design is expected to include vegetated swales and other means of intercepting and filtering road runoff before discharge to streams.

A hydrocarbon/fuel/petrochemical spill could occur during project operation from a tank truck accident that spills gasoline or diesel from the bridge into the marine environment. In general, fish are less vulnerable to effects of oil spills than are most other types of marine organisms. They are mobile, can usually avoid adverse conditions, and rapidly metabolize hydrocarbons (Craddock 1977; Patton 1977). However, if hydrocarbons persisted in sediment, recent work has shown high sensitivities of fish to levels of sediment hydrocarbon concentrations in the parts per million or even parts per billion range (Horness et al. 1998). Other work has shown a very high sensitivity of salmon eggs to residual hydrocarbons from the *Exxon Valdez* spill (Bue et al 1998). Salmon use of Government Creek is noted previously, and pink, coho, and chum salmon are known to spawn in the small creek (Airport Creek) entering Lewis Cove. If a portion of this spawning occurs in tidal areas, a spill could affect egg survival in either of these estuaries. Smolt outmigration from these and other streams in the area occurs from early April through late June. Fry would probably not be vulnerable to acute effects unless a few fish became isolated in a small embayment that received heavy oiling (Brannon et al. 1995).

4.2 Government Creek

All project alternatives include features near Government Creek. Alternatives F1, F3, and G3 would use a clear-span bridge crossing at Government Creek (Figure 8). No loss of EFH would occur by the placement of a bridge over the creek. The steep side would have an abutment at the top. The gradual side may have a pier located on the slope; however, this would be above the high water area of the creek itself. A temporary impact to EFH from in-water construction activities would result in an increase in turbidity. Impacts to EFH would be minimized through implementation of Best Management Practices (BMPs), such as use of silt curtains, booms, or bales to intercept and filter runoff. Disturbed areas would be revegetated to stabilize soils quickly and minimize further runoff.

4.3 Airport Creek

All project alternatives would cross Airport Creek. All alternatives would require two clear span bridge crossings, one over each channel of Airport Creek (Figure 8). No loss of EFH would occur by the placement of bridges over the creek. No fill would be required in Airport Creek because a clear span

bridge would be used and bridge abutments would be above stream floodplains. A temporary impact to EFH from in-water construction activities would be an increase in turbidity, which may reduce water quality, displace fish, or possibly inhibit the food production of plants and other food sources for fish. Impacts to EFH would be minimized through implementation of BMPs to intercept turbid runoff, as described above, and by timing construction outside of critical periods for anadromous fish.

4.4 Other Anadromous Waterways

Alternatives F1 and F3 would require a bridge crossing at an unnamed anadromous fish stream and a culvert crossing at another unnamed anadromous fish streams southeast of Government Creek. In accordance with the memorandum of agreement between DOT&PF and ADF&G, the culvert crossing would be designed to a Tier 1 stream simulation design level and would maintain natural stream conditions such as flow, substrate, and existing fish passage efficiency (see Figure 8). Any impacts to EFH would be temporary and be related to the installation of the culvert(s). This could include such things as a temporary increase in turbidity levels or a temporary diversion of the creeks to allow installation of the culverts. There would be no permanent loss of EFH resulting from the culvert crossing, because the required culvert design features noted above would preserve EFH. The bridge crossing would not require fill because a clear span bridge would be used and bridge abutments would be placed above the stream floodplains. The bridge crossing would not create a loss of EFH. Impacts to EFH would be minimized through implementation of BMPs.

4.5 Cumulative Effects

Cumulative effects are defined as “those effects of future State or private activities, not involving Federal activities, which are reasonably certain to occur within the area of the Federal action subject to consultation” (50 CFR 402.02).

The Gravina Access Project alternatives, when considered with past, present, and other future actions, would have a cumulative effect on EFH. Existing development, coupled with future actions (improvements to the airport, the Gravina Island timber sale, the road north of the airport, and widely dispersed residential and commercial development) would further impact fish species and habitat in Tongass Narrows as a result of direct disturbance during construction, long-term use of the lands, and the improved access to and increased human activity in the Tongass Narrows. Roadways, and clearing and filling for residential, commercial, and resource (timber) development, would lead to the diversion of small streams into culverts, channelization of flows, and increased runoff intensity that could alter natural stream dynamics. This would potentially affect EFH associated with tributaries to Vallenar Bay and Bostwick Inlet, and important marine habitat at Vallenar Bay and Bostwick Inlet.

Pollutant sources associated with foreseeable development include untreated runoff from bridges, ferry emissions, roadway runoff, runoff and pollutant spills associated with industrial (including timber) and commercial development, runoff and pollutants produced by residential development, erosion resulting from land clearing and altered stream hydrology, and increased human activity on currently inaccessible lands.

5.0 Conservation Measures

Construction of this project will require a Title 16 Permit through the Alaska Department of Natural Resources, a determination of consistency with the Coastal Management Plan, and a U.S. Army Corps of Engineers Permit for fill in wetlands and waters of the United States. Coordination with NOAA Fisheries has been ongoing during the planning of this project. The following conservation measures will be incorporated to avoid, minimize, and mitigate impacts to EFH. Based on informal consultation with NMFS, it was determined that timing windows will be subject to modification when we can provide

specific design details of the selected alternative (Miller 2004). These are general measures that will be modified to specifically address details of the preferred alternative through further coordination with the agencies during design.

- At all stream crossings (both culverts and bridge crossings), stream banks would be re-contoured to approximate original conditions and re-seeded with native vegetation to minimize erosion.
- BMPs, developed in accordance with EPA's "Storm Water Management for Construction Activities: Developing Pollution and Prevention Plans and Best Management Practices," EPA Document 832 R-92-005 (EPA 1992), will be employed to minimize the introduction of sediment and siltation of ponds and streams during adjacent fill placement and during culvert placement.
- All anadromous fish stream crossings would be designed to minimize impacts on stream function and to provide passage to both anadromous and resident fish. All road structures crossing anadromous fish habitat channels would be designed to provide passage for juvenile and adult salmon per Alaska Statutes Title 41 (DNR cataloged anadromous streams) standards.
- In-water work in Tongass Narrows would be restricted, as follows. General use of boats and barges could occur year round for general survey and work on bridge structures above water. Except for blasting, dredging, and pile driving, other work in marine waters could occur July 1-February 28. As further described below, blasting, dredging, and pile driving could occur only November 1-February 28, with the possible exception of mid-channel locations, based on further consultation with the Alaska Department of Natural Resources (DNR), NOAA Fisheries, U.S. Army Corps of Engineers (COE), and U.S. Fish and Wildlife Service (USFWS).
- The following conservation recommendations will be followed with respect to pile driving in Tongass Narrows: A vibratory hammer would be used to drive steel piles instead of an impact hammer. Piles should be driven during low tide when in intertidal and subtidal areas.
- All construction in and around anadromous fish streams will take place when stream disturbances would have the least impact on anadromous fish species. The recommended time period for in-stream construction work in the Ketchikan area is June 15 through August 7 (Minnillo 2004). In-stream construction activities should completely avoid the period from August 8 through June 14. For the Ketchikan area, salmon fry generally emerge in the spring from April 15 to May 15, and the adults move into the streams by August 1 and remain through October 31 (Doherty 2003). However, timing of fry emergence and adult spawning depend on the species of fish present in each stream. For example, steelhead spawn in the spring and eggs are generally present in the stream until the middle of July. Fish surveys will be conducted in the summer of 2004 for all streams that will be affected by the project. If additional species are found to be present in the project streams, the existing timing window for in-stream construction (June 15 to August 7) may be modified to protect additional species. Construction work that occurs above the ordinary high water area of the stream and does not include in-stream construction may be conducted throughout the year (Minnillo 2004). In-water work areas, except for stream crossings by construction equipment, will be isolated from flowing waters of all anadromous fish streams.
- Any necessary in-water blasting will be performed such that ground vibration (particle velocity) does not exceed 2.0 inches per second and peak water overpressure (instantaneous pressure change) does not exceed 2.7 pounds per square inch. The project will employ monitoring devices to ensure adherence to these standards. If blasting amounts are minor, and if agreed by the agencies, monitoring may not be undertaken.

- The contractor will be required to prepare a blasting plan prior to any blasting activities. The blasting plan will need be submitted for review by NOAA Fisheries for both EFH and marine mammal impacts. A fish and invertebrate monitoring program will be required for any proposed blasting activities. A pre-blasting survey will be required to ensure that no fish schools are in the vicinity of the blasting area. If fish schools are detected, blasting will be delayed until they leave. A biologist will check the area and record any kills that are within 100 feet up current and 300 feet down current of the blast area after blasting is completed. Monitoring of the dredge materials may be incorporated into the blasting monitoring plan as a method for documenting organisms injured or killed in the blasting. Measures such as covering the rock to be blasted with sand may be used to dampen blast impact. In-water blasting shall avoid the entire months of March through June to avoid juvenile salmonids and the period from June through October 31 to avoid adult salmon. All project-related activities would conform to the pertinent provisions of the Marine Mammal Protection Act and the Endangered Species Act.
- Dredged debris would be placed onto a barge where it would enter a settling basin and be disposed of on land. Only under Alternative F3, which could require substantial removal of sediment and rock, would ocean disposal be necessary. These operations for Alternative F3 would be consistent with the regulations of Clean Water Act, Section 404(b)(1) (disposal of dredged materials into waters of the U.S.) and Marine Protection, Research, and Sanctuaries Act, Sections 102 and 103. Monitoring of the dredged materials may be incorporated into the blasting monitoring plan as a method for documenting organisms injured or killed in the blasting. Dredging activities will avoid the entire months of March through October.
- All fueling and servicing operations will be conducted at least 100 feet away from all streams and water bodies, and fuel storage will be at least 100 feet away from all wetlands and water bodies.
- All necessary permits and agency approvals will be obtained prior to construction, and any permit stipulations will be incorporated into the contract specifications.
- Perimeter staking will be required on the outside of the disturbance area prior to construction to ensure that there is no additional impact from construction activities.
- Silt fences will be used adjacent to EFH stream channels, just beyond the estimated toe of fill.
- Gravel and streambed material will be used in the bottoms of fish-passage culverts.
- Riprap will be placed at specific locations along the stream bank as necessary to maintain stream bank integrity. Placement of riprap at anadromous fish streams should include the use of bioengineering techniques to improve habitat value of the riprap, by incorporation of willow stakes or other locally available vegetation.

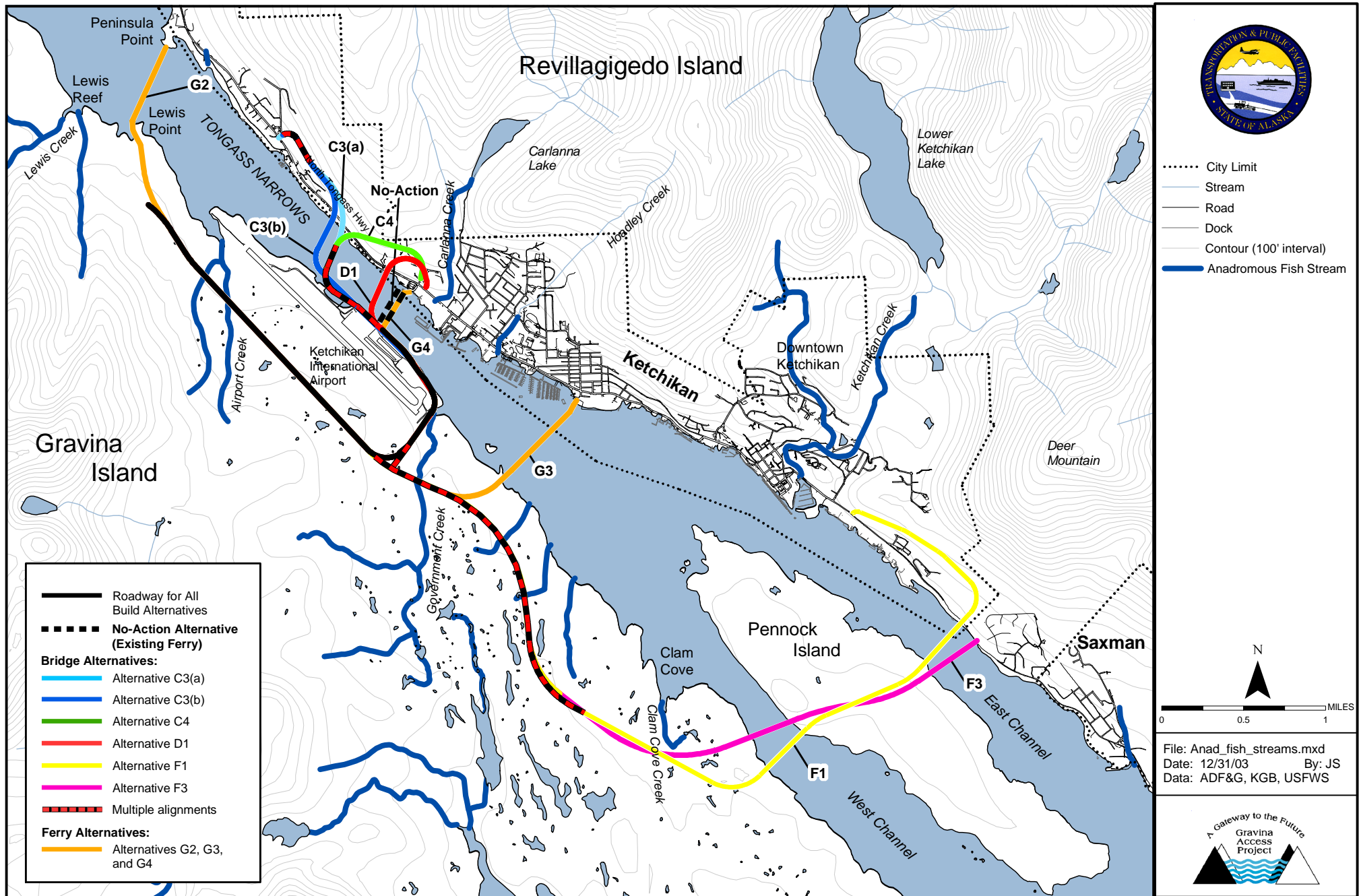
In addition to the conservation measures listed above, more specific requirements may result from the permit process for the preferred alternative, should a build alternative be selected. By design, the permit stipulations will protect the known fish resources in the project area and will protect EFH areas.

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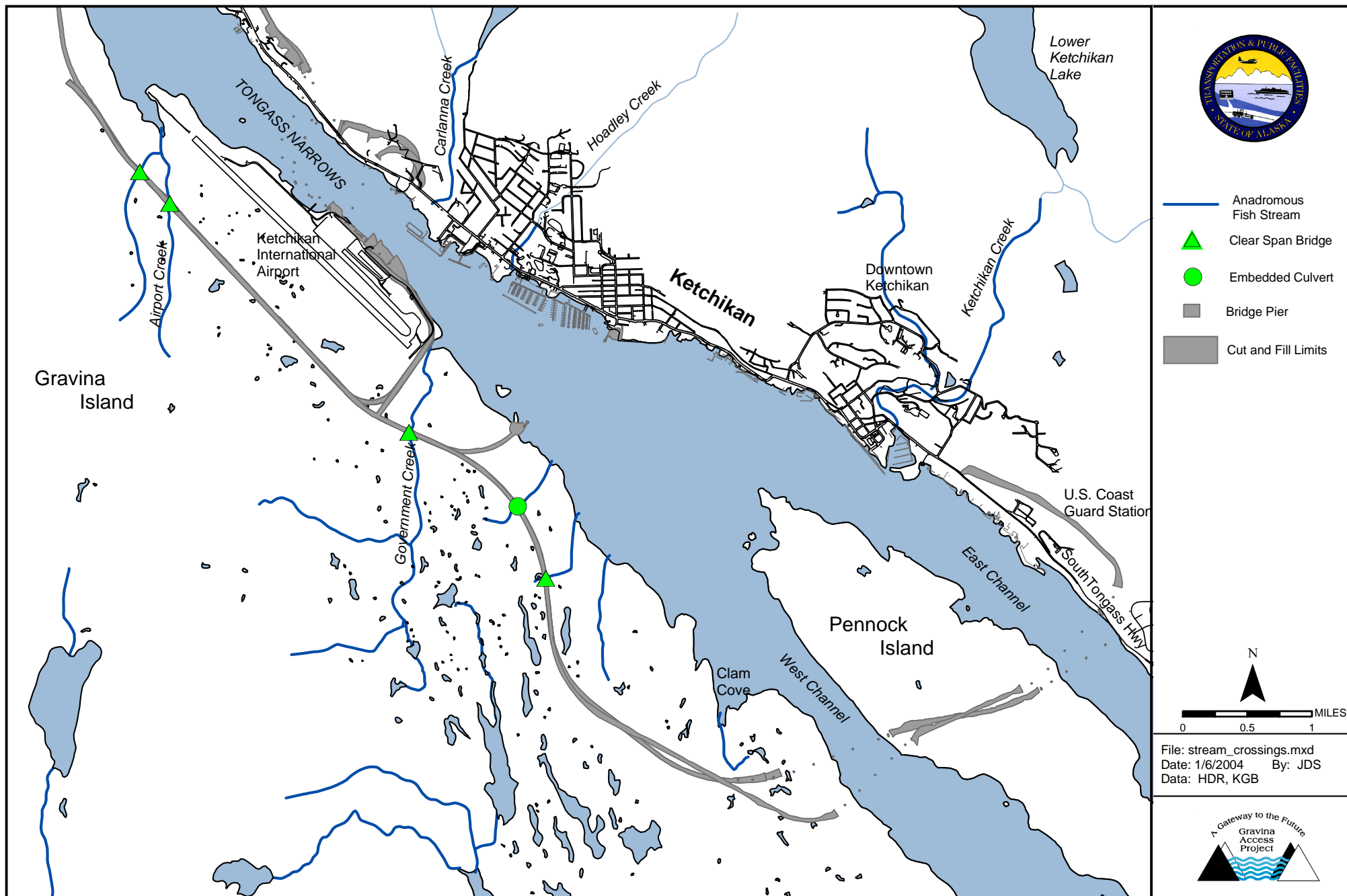
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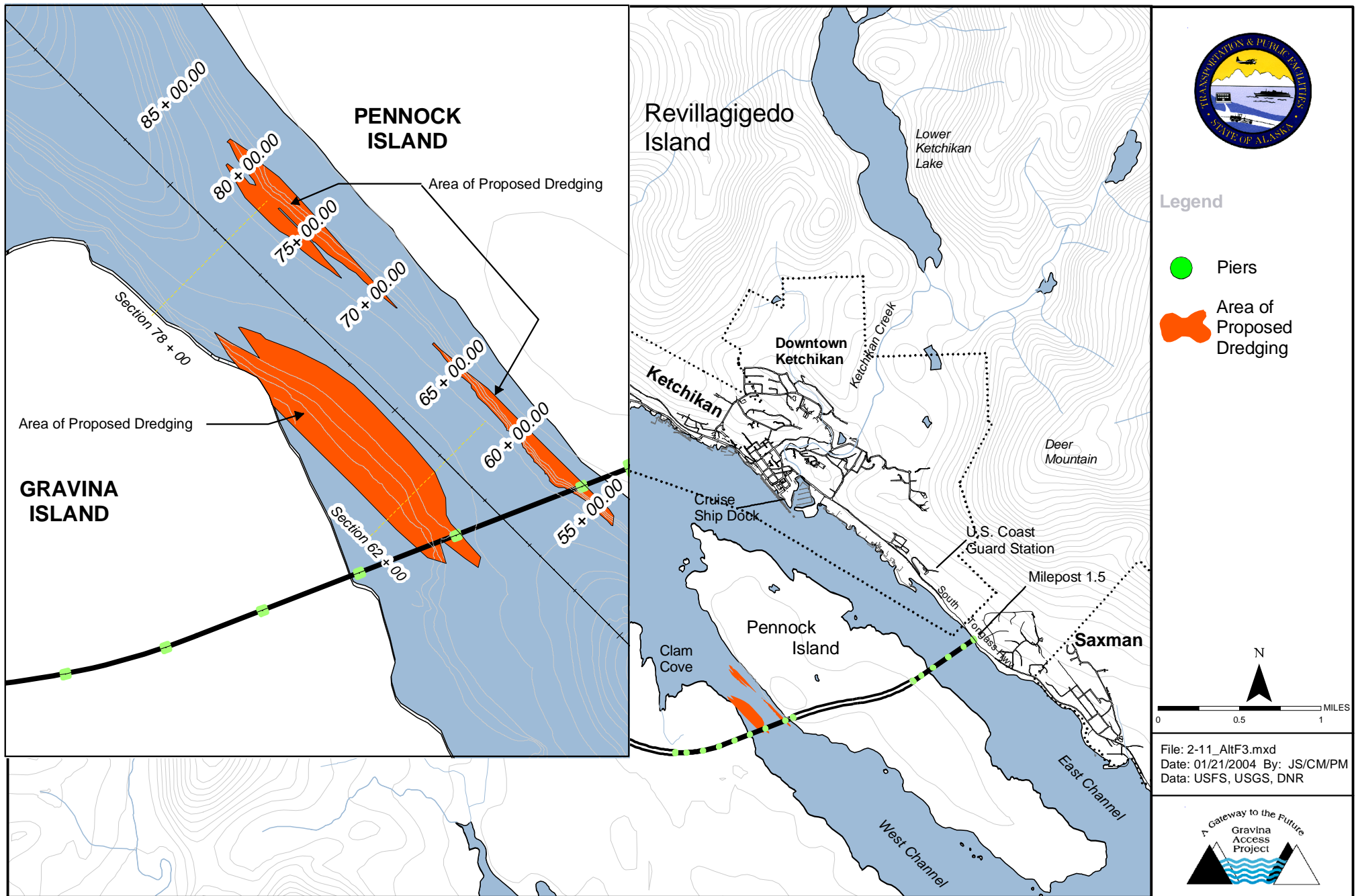
December 2003
Gravina Access Project

Figure 1
Potential EFH Impacts

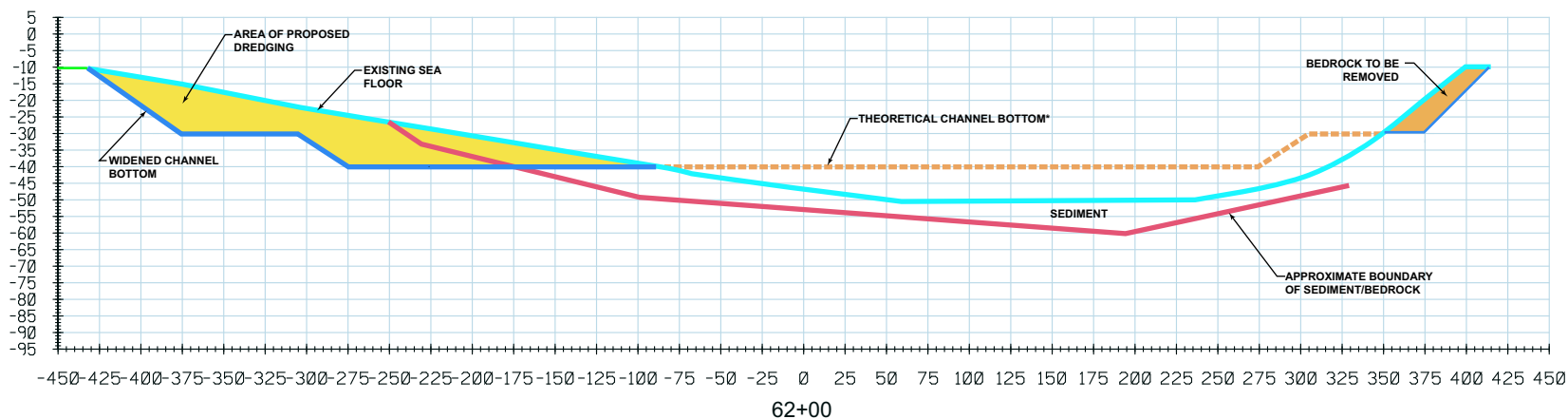
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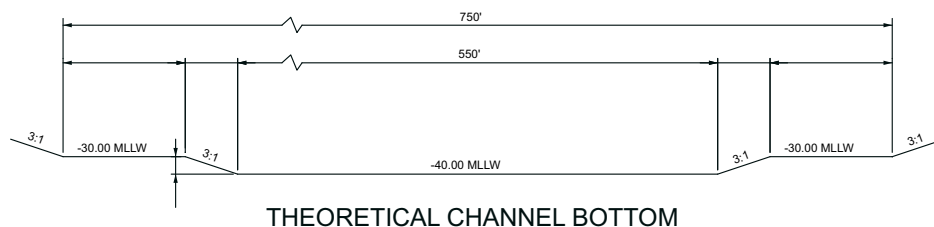
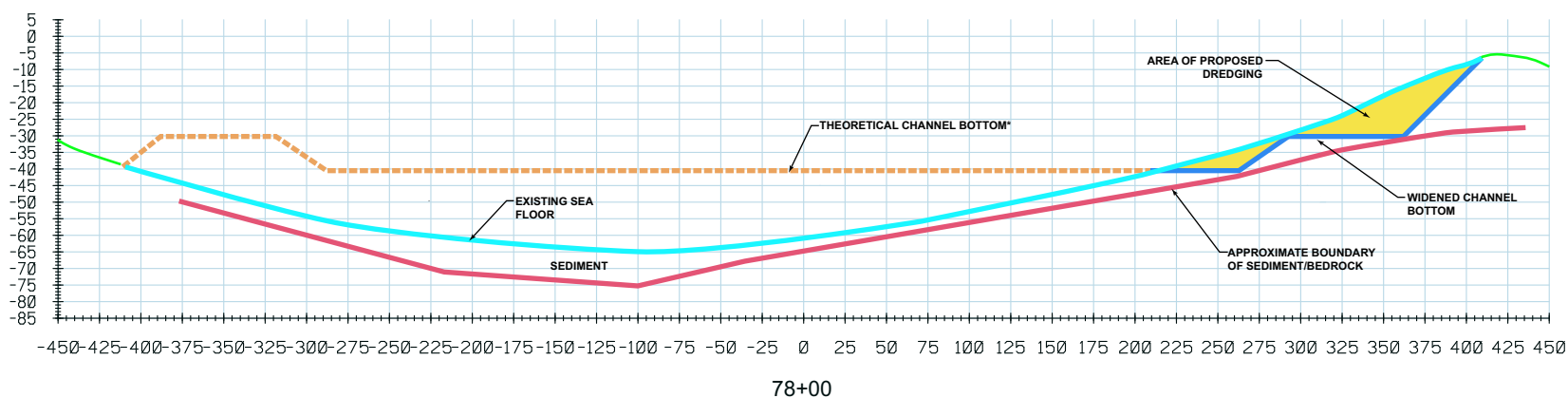
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- Theoretical Channel Bottom
- Existing Sea Floor
- Approximate Boundary of Sediment/Bedrock
- Widened Channel Bottom
- Bedrock To Be Removed
- Area of Proposed Dredging



THEORETICAL CHANNEL BOTTOM

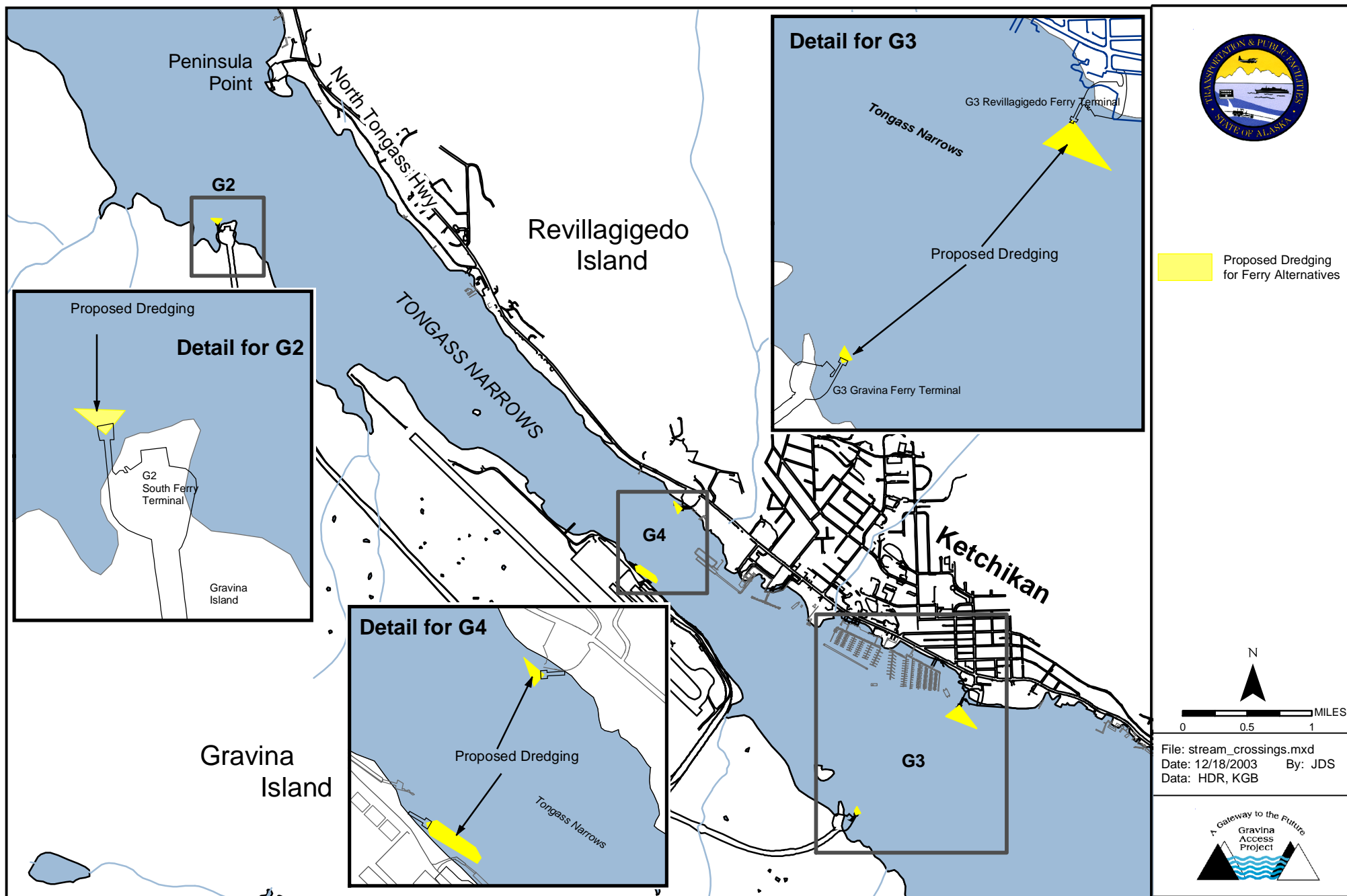
NOT TO SCALE

*Theoretical channel bottom configuration is based on a modeled, minimum section which provides adequate draft for 2-way cruise ship traffic.

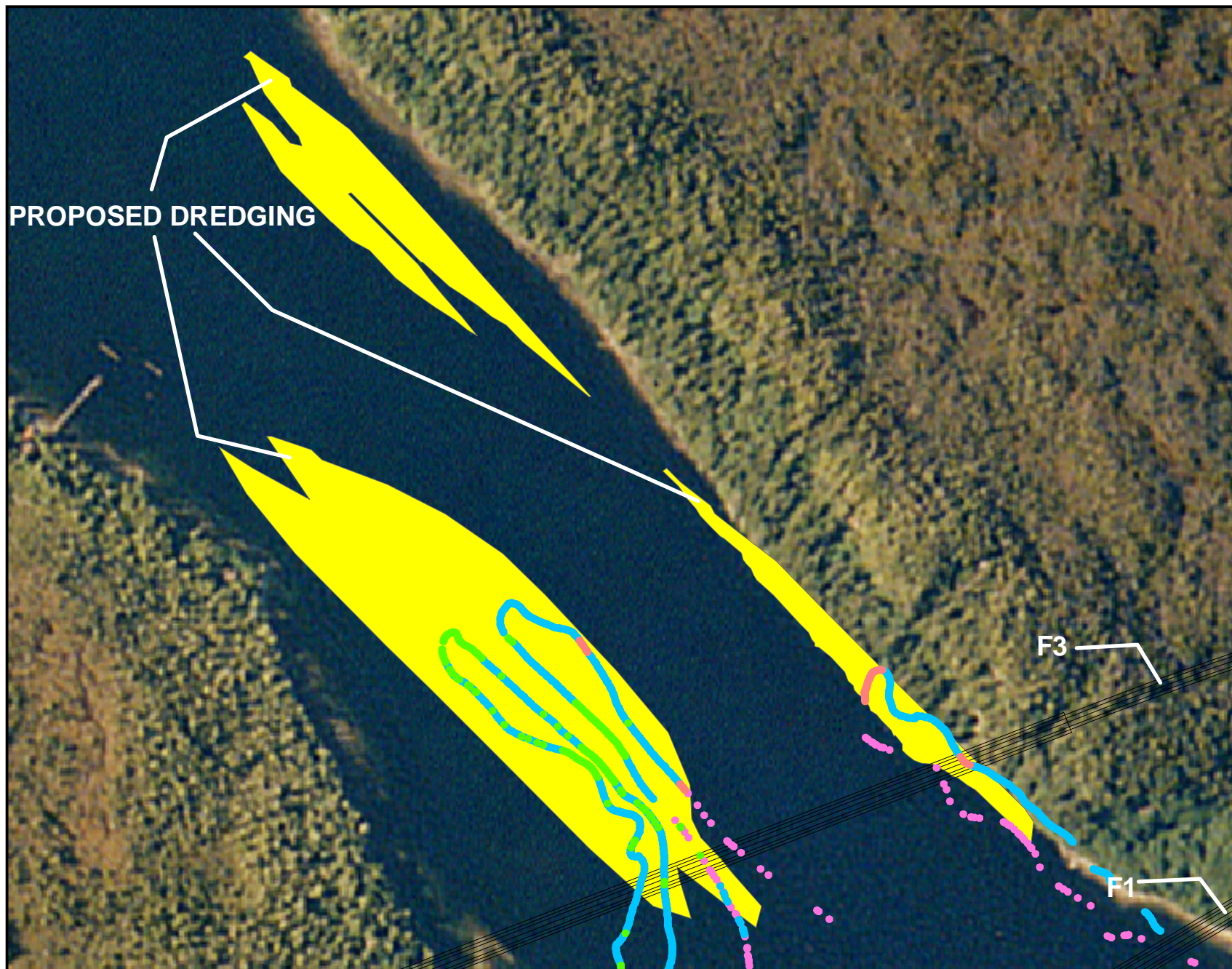
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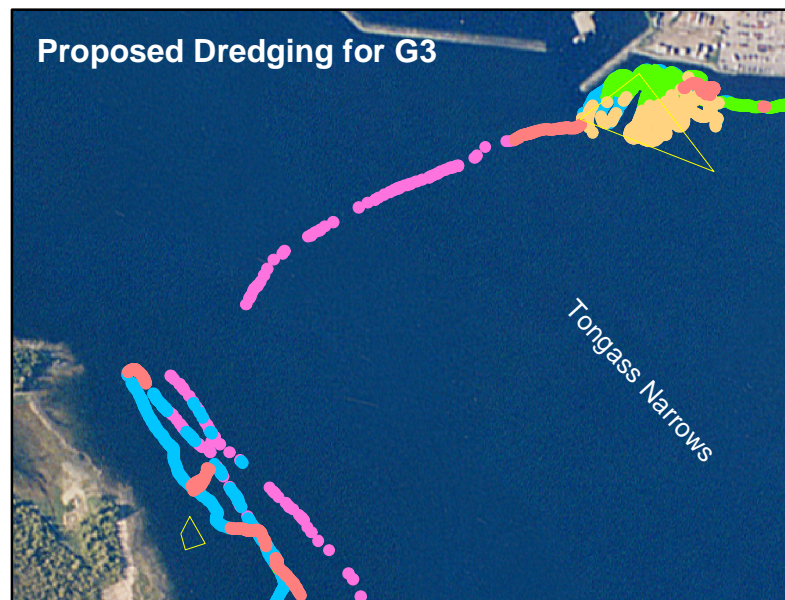
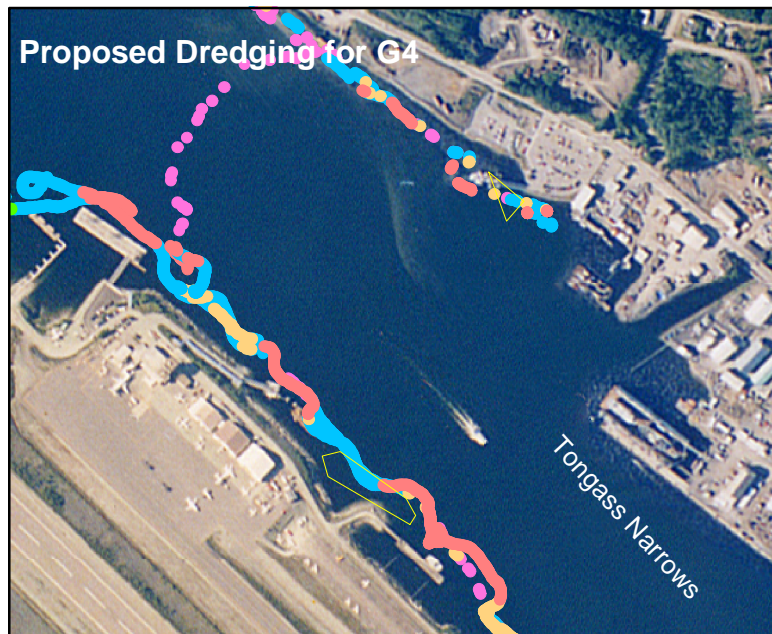
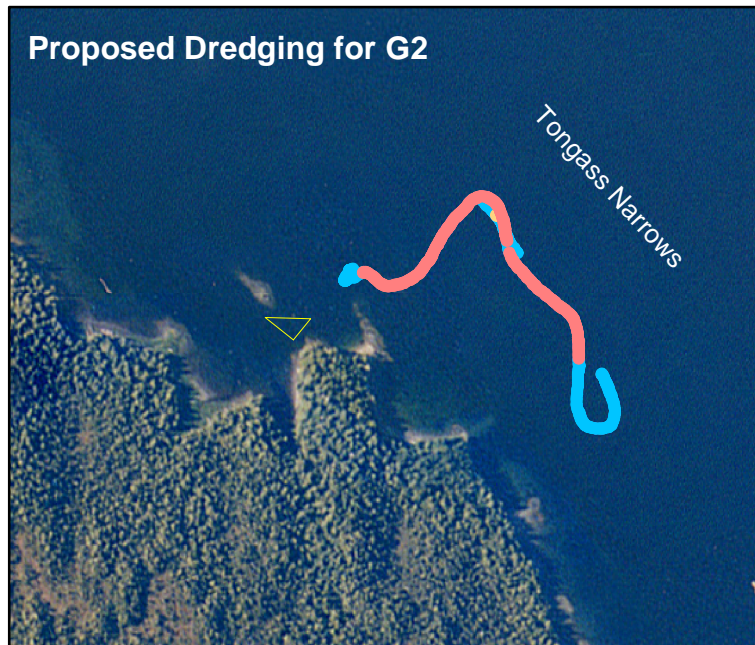
- Proposed Dredging
- Algae
- Bullkelp
- Sea Cucumber
- Eelgrass Bed
- Laminaria



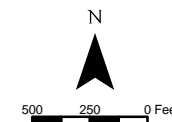
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- Algae
- Bullkelp
- Sea Cucumber
- Eelgrass Bed
- Laminaria
- Proposed Dredging



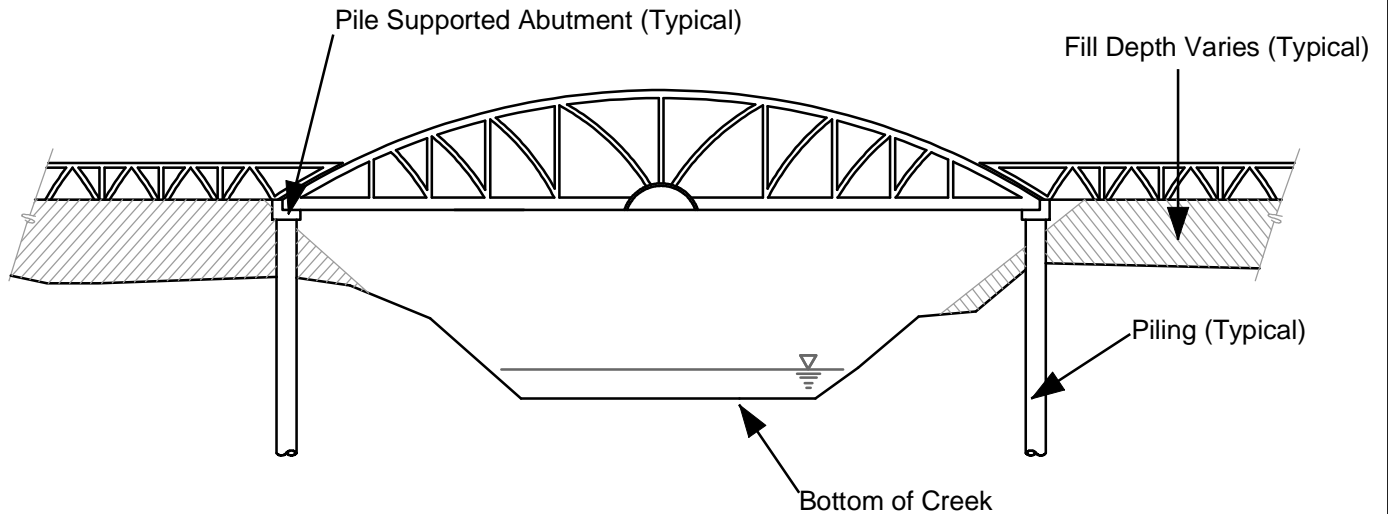
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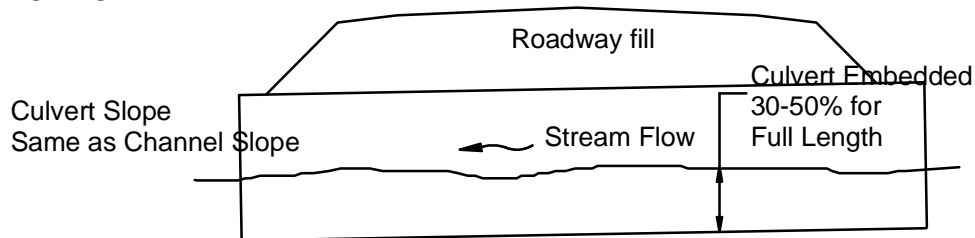
Conceptual Clear Span Bridge

Elevation View

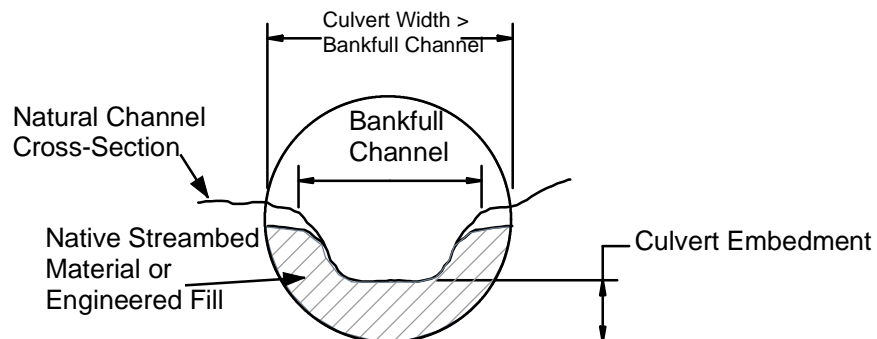


Conceptual Embedded Culvert

Profile View



Section View



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APPENDIX A

**ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES AND
NATIONAL MARINE FISHERIES SERVICE
ESSENTIAL FISH HABITAT: ALASKA AGREEMENT FOR EAs AND EISs**

Consultation with National Marine Fisheries Service (NMFS) on Essential Fish Habitat (EFH).

1. Alaska Department of Transportation & Public Facilities (DOT&PF), in accord with 50 CFR 600.920(c) will be the designated representative of the Federal Highway Administration (FHWA) in the consultation process. The FHWA remains ultimately responsible for compliance.
2. The consultation process for projects requiring an environmental assessment or an environmental impact statement will be accomplished under the existing NEPA/404 merger Agreement process.
3. As part of the initial scoping letter to NOAA Fisheries, DOT&PF will identify possible EFH resources and will request additional information as appropriate.
4. DOT&PF, in concert with FHWA, will determine if the project may adversely effect EFH.
5. DOT&PF will notify NOAA Fisheries that a project may adversely effect EFH and will initiate discussion on possible conservation measures.
6. An EFH assessment will be incorporated in the NEPA document as part of the fish and wildlife section of the environmental consequences, and will be titled or co-titled as such.
7. DOT&PF will provide NOAA Fisheries the draft EA or pre-DEIS including the draft EFH assessment for their review and comment. NOAA Fisheries will respond as appropriate including, preliminary EFH conservation recommendations. If NOAA Fisheries believes that the proposed action may result in substantial adverse effects on EFH, or that additional analysis is needed to accurately assess the effects of the proposed action, NOAA Fisheries will request that FHWA initiate expanded consultation.
8. DOT&PF will revise, amend the EFH assessment as appropriate based on comments and necessary additional coordination with NOAA Fisheries.
9. Transmittal of the approved EA or DEIS to NOAA Fisheries will be considered "Submittal of the EFH Assessment" under 50 CFR 600.920(h)(3).

The EFH assessment, as outlined in 600.920(g), must contain the following: 1) a description of the proposed action; 2) an analysis of individual and cumulative effects of the action on EFH, the managed species, and associated species such as major prey species, including affected life history stages; 3) the agency's views regarding effects on EFH; and 4) a discussion of proposed mitigation, if applicable. Additional information which may be appropriate to include in the EFH assessment is listed in 50 CFR 600.920(g)(3).

10. NOAA Fisheries will respond, in writing, as to whether it concurs with the findings of the EFH assessment as part of their formal comments on the document. If applicable, final EFH conservation recommendations may be included.
11. If necessary, additional coordination to resolve concurrence issues will be initiated. As applicable, DOT&PF will respond, in writing, within 30 days with respect to conservation recommendations.

The response must include a description of measures proposed for avoiding, mitigating, or offsetting the impacts of the project on EFH, as required by 50 CFR 600.920(j). If the response is inconsistent with NOAA Fisheries Conservation Recommendations the reasons for not following the recommendations must be explained, including the scientific justification for any disagreements with NOAA Fisheries over the anticipated effects of the project or measures needed to avoid, minimize, mitigate or offset such effects.

12. The FONSI or FEIS will address NOAA Fisheries response to the transmittal.

The steps outlined above address the abbreviated consultation procedures described in 50 CFR 600.920(h). If at any point in the process it is determined that the project would result in substantial adverse effects to EFH or that additional information/analysis is needed, expanded consultation procedures will be implemented. A party may request expanded consultation at any point in the process. The parties will determine how best to implement expanded consultation based on the specifics of the project. It is recognized that additional information may be required, that a site visit will be necessary and that conservation recommendations will need to be addressed. However, to the extent practical, existing NEPA/404 Agreement procedures will be utilized to fulfill the requirements of expanded consultation.

In order to provide a reference to the sequence of activities outlined in this document to the NEPA/404 Agreement, the concurrence points are identified. Concurrence on purpose & need would be requested concurrent with or just after item 3. Concurrence on range of alternatives (preferred alternative for EAs) would be requested before or concurrent with item 5. Request for concurrence in the preferred alternative would occur before or concurrent with item 11.

Dispute Resolution

If an FHWA decision is inconsistent with NOAA Fisheries EFH Conservation Recommendations, 50 CFR 600.920(j)(2) allows the NOAA Assistant Administrator for Fisheries to request a meeting with the head of the FHWA to discuss the proposed action and opportunities for resolving any disagreements. NOAA Fisheries will endeavor to resolve any such issues at the field level wherever possible, typically in a meeting between the NOAA Fisheries Regional Administrator and The FHWA Division Administrator.

APPENDIX B

**LETTERS FROM NATIONAL MARINE FISHERIES SERVICE REGARDING ESSENTIAL
FISH HABITAT**

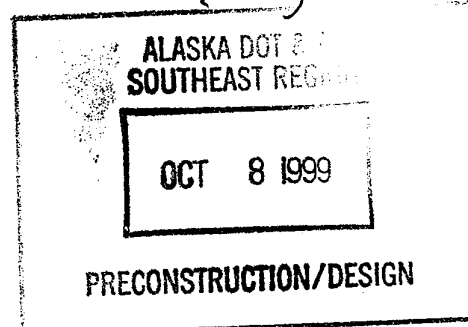


UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

P.O. Box 21668

Juneau, Alaska 99802-1668

October 13, 1999



Al Steininger, P.E.
Project Manager
State of Alaska
Department of Transportation
and Public Facilities
Design and Engineering Services Division
Southeast Region - Design
6860 Glacier Highway
Juneau, Alaska 99801-7999

RE: Gravina Access Project - Agency Scoping Comments

Dear Mr. Steininger:

Thank you for soliciting scoping comments on the referenced project. The purpose of the project is to provide better access between the Ketchikan airport and the city of Ketchikan. Alternatives were discussed at the September 27 scoping meeting held in Juneau and include enhanced ferry service, an underground tunnel, and a bridge, the location of which will be considered at a number of locations. The National Marine Fisheries Service (NMFS) has the responsibility to comment on impacts to living marine resources under our jurisdiction including anadromous fish, marine fish and invertebrates and marine mammals. Accordingly, we would favor those project alternatives and designs that minimize direct, indirect and cumulative impacts to anadromous fish streams, wetlands, intertidal areas, submerged aquatic vegetation, marine habitats, and the relevant species using them.

Mark Dalton of HDR consulting has met separately with Steve Brockmann of the U.S. Fish and Wildlife Service and Jack Gustafson of the Alaska Department of Fish and Game, and provided us with a summary of resource issues provided at that meeting. Of the issues listed, the NMFS is also concerned with numbers 1, 3, 4, 5, 6, 9, 10, 11, 12, 13, 16, 17, 19, 20, and 24. Rather than re-state these issues, we are providing additional comment as follows.



Of the issues listed above, numbers 4,5 and 6 address the presence of marine mammals in Tongass Narrows and suggest that additional studies may be necessary. We concur with this recommendation, as any in-water work that generates underwater noise will need to be evaluated for its potential to disturb marine mammals that may be present (as well as migrating juvenile salmonids and spawning herring). Enclosed is a draft copy of a report for the marine mammal observation program implemented aboard some of the ferries of the Alaska Marine Highway System. Sightings collected through this program show humpback whale, killer whale and Pacific white-sided dolphin sightings in the northern area of Tongass Narrows, and/or the confluence of Tongass Narrows, Clarence Strait and Behm Canal. The humpback whale and Steller sea lion are listed as endangered and threatened species, respectively. Depending on the magnitude of impact to these species, it may be necessary to satisfy consultation requirements of the Endangered Species Act with the responsible Federal agency, the Federal Highway Administration.

The environmental impact statement (EIS) for the project will need to address the essential fish habitat (EFH) requirements of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). The EIS should include an assessment of the impacts of the proposed action on EFH in a chapter or section titled "Essential Fish Habitat". The EFH assessment should include 1) a description of the proposed action; 2) an analysis of individual and cumulative effects of the action on EFH, the managed species, and associated species such as major prey species, including affected life history stages; 3) the responsible Federal agency's views regarding the effects of the action on EFH; and 4) a discussion of any proposed mitigation, if applicable.

Upon receipt of the EFH assessment, NMFS will provide back to the Federal agency or their representative, any EFH conservation recommendations, as appropriate, if we believe the project would adversely affect EFH. In order to develop these conservation recommendations, whenever possible, at least 60 days notice prior to a final decision on an action, or 90 days if the action would result in a substantial adverse impact to EFH. Upon receipt of NMFS conservation recommendations, the Federal agency is required to respond in writing to NMFS within 30 days.

EFH Assessment Information:

To assist you in developing an EFH assessment, we have identified EFH in the general vicinity of the current ferry between the airport and the city of Ketchikan. This list would need to be verified for specific project sites, but is likely to be similar, if not identical. Specific information on habitat for salmon should be obtained from the Alaska Department of Fish and Game

and U.S. Fish and Wildlife Service in Ketchikan. EFH for all five species of Pacific salmon (chinook, coho, chum sockeye, pink) is present in the project area.

Following are habitat characteristics for the non-salmonid species of EFH. References to habitat locations indicate the following depth associations; inner (1-50 meters) and middle (50-100 meters) and outer (100-200 meters) shelf regions and upper (200-1000m) and lower (>1000m) slopes and basin (>3000m).

Pacific Ocean Perch Adults and Late Juveniles:

Adults found in outer shelf and upper slope. Juveniles found in inner, middle, and outer shelves, and upper slope. Larval stages found in same as juveniles plus lower slope and basin. Adult substrates are gravel, pebble, and cobble, juvenile substrates are the same as adults plus boulders.

Yelloweye Rockfish Adults and Late Juveniles:

Adults and juveniles are both found in the middle and outer shelves and upper slope. Habitat for both is bays, estuaries, and island passes. Both life stages are demersal. Found in substrate areas of rock, coral and cobble. High concentrations are found associated with high relief containing refuge spaces such as overhangs, crevices and caves. Feeding areas are those containing fish, shrimp and crab.

Shortraker and Rougheye Rockfish Adults and late Juveniles:

Adults occur in outer shelf and upper slope, in depths from 25 to 875 m and are semi-demersal. Juveniles are found in the middle and outer shelves. Adults found over all substrates including mud, clay, silt, sand, gravel, pebble, cobble, boulder and bedrock. However, from submersible observations, soft substrates of sand or mud usually had the highest densities; whereas hard substrates of bedrock, cobble or pebble usually had the lowest adult densities. Habitats with steep slopes and frequent boulders were used at a higher rate than habitats with gradual slopes and few boulders. It is suspected that juveniles occupy shallower habitats than adults.

Dusky Rockfish Adults and Late Juveniles:

Adults found in outer shelf, upper slope and nearshore waters of Southeast Alaska along rocky shores at depths less than 50m. Juveniles found in inner (1-50m) and middle (50-100m) slopes. Substrates for adults and juveniles is gravel, cobble, boulder. Juvenile dusky rockfish have also been captured in nearshore eelgrass and kelp beds. Adults are semi-demersal/semi-pelagic.

Walleye Pollock Adults and Eggs:

Both adults and eggs occur in outer shelf. Walleye pollock and their eggs are pelagic, therefore they may occur in waters over any substrate.

Sablefish Adults and Late Juveniles:

Adults and late juveniles occur in the upper and lower slopes. Adult and late juvenile sablefish are pelagic and may occur in waters over any substrate.

Pacific Cod Adults and Late Juveniles:

Occur in both inner and middle shelf regions. Both life stages are demersal. Adults occur from the shoreline to 500m, juveniles from 60-150m. Preferred substrate is soft sediment, from mud and clay to sand.

Arrowtooth Flounder Adults and Late Juveniles:

Occur in both inner and middle shelf regions. Both life stages are demersal. Juveniles inhabit shallow areas until about 10 cm in length. Widespread distribution mainly on middle and out portions of shelf. Wintertime migration to shelf margin and upper continental slope to avoid cold temperatures.

Sculpin spp. Adults and Late Juveniles:

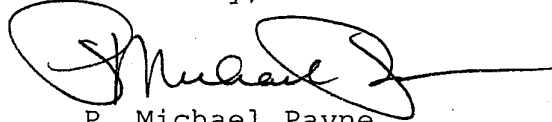
Occur in both inner and middle shelf regions. Both life stages are demersal. Broad range of habitats from intertidal pools, and all shelf substrates (mud, sand, gravel, etc.).

Skates spp. Adults and Late Juveniles:

Occur in middle shelf regions. Both life stages are demersal. Broad range of substrate types (mud, sand, gravel, and rock) and the lower portion of the water column.

Thank you for the opportunity to comment. We look forward to continued coordination for this project. If you have any further concerns or questions please contact Linda Shaw at (907) 586-7510.

Sincerely,

A handwritten signature in black ink, appearing to read "P. Michael Payne", with a long horizontal flourish extending to the right.

P. Michael Payne
Assistant Regional
Administrator
for Habitat Conservation

cc: EPA Anchorage (Mark Jen)
ADEC, AADGC, ADNR, Juneau
ADF&G, USFWS, Ketchikan

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

DESIGN & ENGINEERING SERVICES DIVISION SOUTHEAST REGION - DESIGN

FRANK H. MURKOWSKI, GOVERNOR

6660 GLACIER HIGHWAY
JUNEAU, ALASKA 99801-7999
PHONE: (907) 465-4428
TEXT: (907) 465-4647
FAX: (907) 465-4414

February 21, 2003

Linda Shaw
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

Re: Draft Essential Fish Habitat Assessment
Gravina Access Project #67698 / ACHP-0922(5)

Dear Ms. Shaw:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Highway Administration, is preparing a Draft Environmental Impact Statement (DEIS) to assess impacts of the proposed Gravina Access Project located in Ketchikan. DOT&PF has hired HDR Alaska, Inc., to complete the EIS studies. Planning has been underway since 1999 with preliminary engineering and public and agency scoping. A draft EIS is anticipated in Spring 2003.

The proposed project corridor is located between Gravina Island and Revillagigedo Island in the Ketchikan Gateway Borough. The two islands are separated by Tongass Narrows, a 13-mile-long waterway that varies in width from approximately ¼ to 1 mile. As shown on Figure 1 of the attached draft Essential Fish Habitat (EFH) assessment, six bridge alternatives and three ferry alternatives are reasonable alternatives evaluated in the DEIS.

In accordance with the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act, we present an EFH assessment with the following information: (1) a description of the proposed action, (2) an analysis of the effects on EFH, (3) the effects of the action on EFH, and (4) proposed mitigation.

We have determined that all of the project alternatives may adversely affect EFH, as established by the 1996 reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act and the Department of Commerce's EFH consultation regulations. We request your review of the enclosed draft EFH Assessment. I would appreciate your comments on the draft assessment and any recommendations and/or proposed conservation measures you may have at this time.

Ms. Linda Shaw
February 21, 2003
Page 2 of 2

Based on your comments and recommendations, we will revise the draft assessment and include it in the Draft EIS for your official review per the January 7, 2000 agreement between FHWA and NMFS.

If you have any questions regarding this request, please do not hesitate to contact me at 907/465-4498 or our Consultant Project Manager, Mark Dalton, at 907/274-2000.

Sincerely,



Reuben Yost
Regional Environmental Coordinator

Copies:

Roger Healy, ADOT&PF
Mark Dalton, HDR
Tim Haugh, FHWA



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

March 14, 2003

Mr. Reuben Yost
Regional Environmental Coordinator
Alaska Department of Transportation
and Public Facilities
6860 Glacier Highway
Juneau, Alaska 99801-7999

ALASKA DOT & PF
SOUTHEAST REGION

MAR 20 2003

PRELIMINARY DESIGN & ENVIRONMENTAL

RE: Draft Essential Fish Habitat (EFH) Assessment,
Gravina Access Project, #67698/ACHP-0922(5)

Dear Mr. Yost:

The National Marine Fisheries Service (NMFS) has reviewed the referenced Draft EFH assessment. NMFS offers both general and specific revisions for your consideration.

General Comments:

Page 1, Section 1.0, B., second paragraph, last sentence, and
Page 13, Section D.:

This sentence states that "Alternatives F1 and F3 would require placing culverts in an unnamed anadromous fish stream that would cause loss of EFH." Section D. reiterates this point. The EFH assessment and DEIS should include, as an alternative for analysis, the use of bridges for these alternatives. Bridges usually eliminate or significantly minimize adverse effects to EFH.

Page 10, Section 4.0, A., first paragraph, fourth and fifth sentences:

These sentences state that "There would be some permanent loss of eelgrass beds from placement of fill in Tongass Narrows. Pier footings and the bridge structures could slow the growth of eelgrass beds by shading, which indirectly would negatively impact EFH."

The EFH assessment should document how much eelgrass would be impacted and where it is located. Figure 1 should map the location of the eelgrass beds, as well as other sensitive habitats, including kelp beds and wetlands. A sentence should



be added to this section that mentions the loss of interspersed eelgrass and kelp in the next section "Impacts of Pier Construction and Modification." Acreage of impacts by habitat type of eelgrass, kelp and wetlands should be included in Table 1-1, which currently provides only "freshwater" and "marine" impacts.

Page 11, Section 4.0, A., third paragraph:

This paragraph outlines plans for channel widening that would deepen a 2,000 foot long by 550-750 foot wide area from -10 to -40 mean lower low water (MLLW). According to this section "This action would eliminate interspersed eelgrass and kelp beds located in this area. Newly exposed soil and rock surfaces would be re-colonized over a period of years. Ultimate benthic assemblages are expected to resemble those now found in similar substrates and depths. Because of the loss of some shallow water habitats, especially on the southwest side of the channel, overall productivity in the area would be less than current productivity in the existing shallower areas."

This discussion should indicate how much eelgrass and kelp would be eliminated, and where it is located (preferably on a map). It is unlikely that these communities would re-establish in the deeper depths that would result. Eelgrass is typically found to -20 feet MLLW in southeast Alaska, and kelp to -60 feet MLLW. This should be clearly stated, and the document should provide a more specific description of the benthic communities referred to as replacing those eelgrass and kelp communities. NMFS may be able to assist with a dive survey to document the benthic habitat in this area. United States Fish and Wildlife Service staff have also expressed interest in a possible dive survey for this project (Mr. Ed Grossman, personal communication, March 11, 2003).

Page 14, fifth bullet:

98 The blasting plan will need to be reviewed by NMFS for both EFH and marine mammal impacts.

Page 15, fourth bullet:

Placement of riprap along stream banks to maintain stream bank integrity should include the use of bioengineering techniques to improve habitat value of the riprap, by incorporation of willow stakes, or other locally available vegetation.

Specific Comments:

Page 3, section 3.0, penultimate sentence:

Add boldface type to sentence as follows.

"These include Government Creek, Airport Creek **and its tributary**, and two unnamed streams (Figure 1)."

Page 4, section 3.0, A., third sentence:

Replace "dusty rockfish" with "dusky rockfish".

Page 4, section 3.0, A., fourth sentence:

Replace "shore tracker" with "shortraker rockfish".

Page 4, section 3.0, A., eight sentence:

Replace "species; they", with " species, which".

Page 5, section 3.0, C., fifth sentence:

Remove the word "and" from "lower (>1000 meters) and slopes and basen (>3000 meters) (NMFS 1999)."

Page 5, section 3.0, C., "Arrowtooth Flounder" paragraph, fourth sentence:

Remove "s" from word "desmersal" to spell as "demersal".

Page 5, section 3.0, C. "Dusty (sic) Rockfish" paragraph, title and first sentence:

Replace "Dusty rockfish" with "Dusky Rockfish".

Page 6, section 3.0, C. "Pacific Cod":

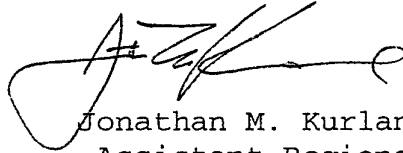
Add the sentence "Juvenile Pacific cod have been captured in nearshore eelgrass and kelp beds."

Page 6, section 3.0, C. "Shore tracker (sic) and Rougheye Rockfish":

Replace "Shore tracker" with "Shortraker"

Thank you for the opportunity to review the draft EFH assessment. Please direct any questions you may have regarding these comments to Linda Shaw at (907) 586-7510.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Kurland", with a large, stylized loop at the end.

Jonathan M. Kurland
Assistant Regional Administrator
for Habitat Conservation

cc: EPA, Juneau
ADEC, AADGC, ADNR, ADF&G, USFWS, Juneau
ADF&G, Ketchikan



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

March 21, 2013

Kris Riesenber
NEPA Project Manager
Federal Highway Administration
P.O. Box 21648
Juneau, Alaska 99802

Re: Gravina Access Project Supplemental Environmental Impact Statement Essential Fish
Habitat Assessment Addendum

Dear Ms. Riesenber:

The National Marine Fisheries Service (NMFS) reviewed the Gravina Access Project Supplement Environmental Impact Statement (SEIS) Essential Fish Habitat (EFH) Assessment Addendum prepared in cooperation by the Federal Highway Administration (FHWA) and Alaska Department of Transportation and Public Facilities (ADOT&PF). The report is an addendum to the 2004 EFH Assessment and provides updates to baseline conditions, descriptions of project alternatives and potential impacts, and conservation measures to avoid and minimize potential project effects. You requested comments on the Gravina Access Project SEIS EFH Assessment Addendum and any additional recommendations and conservation measures pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act which requires federal agencies to consult with the NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH. You noted that the FHWA has not identified a preferred alternative, therefore the conservation measures in the addendum are general measures to be included in the SEIS that is expected to be released in late spring 2013.

The EFH Assessment Addendum describes two bridge alternatives (C3-4, the Airport Bridge and F3, the Pennock Island Bridge) and four ferry alternatives (G2, G3, G4 and G4v). The various alternatives also include widening of the Gravina Island Highway and Bridge, construction of Seley Road and reconstruction of Lewis Reef Road and the Airport Access Road. Fourteen conservation recommendations are provided that include best management practices at stream crossings, in-water work windows, best management practices for pile driving and blasting, and the development of a blasting plan, including monitoring, to be submitted to NMFS for review. Assurance is given that more specific requirements may result during the permitting and final design process for the preferred alternative, should a build alternative be selected.



Table four on page nineteen of the EFH Assessment Addendum identifies water body crossings, piers, fill and dredging impacts to Tongass Narrows from construction of each alternative. Alternative G4v is the least damaging alternative to the aquatic environment. The remaining alternatives would cause unavoidable and permanent impacts to the aquatic environment to varying degrees. Alternatives C3-4, G2, and G3 require the most fill in Tongass Narrows. Alternatives F3, G3, and G4 require the most dredging in Tongass Narrows. Alternatives F3 and G3 have the greatest loss of eelgrass beds (0.5 and 0.7 acres respectively) and of kelp beds (1.8 and 0.5 acres respectively). Alternatives G2 and G3 both have losses of saltmarsh (1.0 and 2.0 acres respectively).

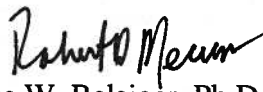
EFH Conservation Recommendations

NMFS recommends that the FHWA select alternative G4v which is the least damaging alternative to the aquatic environment.

If another alternative is chosen NMFS recommends that ADOT&PF convene an interagency mitigation team to determine how to compensate for these unavoidable losses.

If you have any questions regarding our comments for this project, please contact Linda Shaw at (907) 586-7510 or by email at Linda.Shaw@noaa.gov.

Sincerely,


for James W. Balsiger, Ph.D.
Administrator, Alaska Region

cc: John Barnett, ADOT

Gravina Access Project

Appendix E - Part 2 Endangered Species Act Consultation

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U.S. Department
of Transportation
**Federal Highway
Administration**

Alaska Division

June 21, 2012

P.O. Box 21648
Juneau, AK 99802-1648
(907) 586-7418
(907) 586-7420
www.fhwa.dot.gov/akdiv

In Reply Refer To:
FHWA-AK-EIS-03-01-F/67698

Ms. Kaja Brix
Director
National Marine Fisheries Service
Protected Resources Division
P.O. Box 21688
Juneau, AK 99802

Dear Ms. Brix:

The Federal Highway Administration (FHWA), in cooperation with the Department of Transportation and Public Facilities (DOT&PF), is preparing a Supplemental Environmental Impact Statement (SEIS) for the Gravina Access Project near Ketchikan, Alaska.

In July 2004, FHWA and DOT&PF issued a Final Environmental Impact Statement (FEIS) for the Gravina Access Project. The FEIS included a biological assessment (BA) (Attachment A) and a letter of concurrence from National Marine Fisheries (NMFS; Attachment B) for a *not likely to adversely affect* determination for Steller sea lions (*Eumetopias jubatus*), designated Steller sea lion habitat, and humpback whales (*Megaptera novaeangliae*) for all alternatives in the FEIS.

FHWA issued a Record of Decision on September 15, 2004, and identified Alternative F1 as the Selected Alternative. Alternative F1 crosses Tongass Narrows at Pennock Island, requiring construction of bridges across the East Channel and West Channel. In addition, the Gravina Island Highway was proposed to connect the bridge crossing with the airport. Following completion of the EIS and permitting, the DOT&PF moved forward with the first phase of implementing Alternative F1: construction of the Gravina Island Highway, which was completed in 2008.

On September 21, 2007, Alaska Governor Sarah Palin directed the DOT&PF to look for a lower cost alternative for access to the airport and Gravina Island. On July 2, 2008, FHWA issued a notice of intent to re-examine alternatives in an SEIS and identify and select a new preferred alternative.

Attachment C describes the changes to the Gravina Access Project alternatives and associated effects to Steller sea lions (*Eumetopias jubatus*), designated Steller sea lion habitat, and humpback whales (*Megaptera novaeangliae*). Based on our review of the changes to the proposed action, the FHWA and DOT&PF conclude that the changes to the proposed action are consistent with the effects analyzed in the 2003 BA (Attachment A), and the NMFS *not likely to adversely affect* determination for Stellar sea lions, Steller sea lion designated critical habitat,

and humpback whales (Attachment B). As such, the FHWA and DOT&PF request that NMFS concur with the determination of *not likely to adversely affect* for the revised project. This consultation request is also made on behalf of the U.S. Army Corps of Engineers and U.S. Coast Guard, which are cooperating agencies for the Gravina Access Project SEIS.

Please submit your written response via mail to Kris Riesenber, Project Manager, Federal Highway Administration, P.O. Box 21648, Juneau, Alaska 99802 or email at kris.riesenberg@dot.gov . Please feel free to contact me at (907) 586-7413 with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kris Riesenber', with a stylized flourish at the end.

Kris Riesenber
FHWA Project Manager

Enclosures:

Attachment A: 2003 Biological Assessment
Attachment B: 2004 Letter of Concurrence
Attachment C: MMPA and ESA Section 7 Consultation Updates

cc w/o enclosures:

John Barnett, DOT&PF, Southeast, Project Environmental Coordinator
Jim Lowell, DOT&PF, Special Projects Manager
Mark Dalton, HDR Alaska, Inc

Attachment A:
2003 Biological Assessment

Gravina Access Project

Threatened and Endangered Species Biological Assessment for Humpback Whale and Steller Sea Lion

Updated November 2003

Introduction

An environmental impact statement (EIS) is underway for the Gravina Access Project in the Ketchikan Gateway Borough, Alaska. There are no species under the jurisdiction of the U.S. Fish and Wildlife Service listed as threatened or endangered under the Endangered Species Act in the project area. The National Marine Fisheries Service (NOAA Fisheries—part of the National Oceanic and Atmospheric Administration) lists two species within the project area as endangered or threatened: the Steller sea lion and the humpback whale. Both species are additionally protected under the Marine Mammal Protection Act of 1972. The text of this document is substantially the same as the text intended for the final EIS and constitutes a biological assessment as required by 50 CFR 402.12. The measures outlined here to protect these two species will also protect other mammals protected by the Marine Mammal Protection Act. As described below, employing these measures, the project is not likely to adversely affect protected species or any identified critical habitat.

Construction Background

The project is anticipated to take up to three years to construct. Seasonal construction timing is discussed at the end of this document. On-site construction of ferry terminals could be completed more quickly than three years, and the in-water components would be completed in 1-2 construction seasons. Bridge construction alternatives likely would require three years. The most critical construction components related to marine mammals is in-water work, particularly drilling rock for pier placement, possible blasting, and possible dredging.

Drilling, using reverse rotary drill technology, would create holes 10-12 feet in diameter and 50-100 feet deep in substrate rock to anchor the piers. Each bridge pier foundation would require drilling 4-6 such holes. There are six in-water piers for Alternative F1 (the preferred alternative) and approximately equal numbers for other bridge alternatives. Each hole would take approximately one week to complete. This amounts to a total of approximately 30 weeks of in-water drilling, although it is possible that more than one hole could be drilled simultaneously.

Underwater blasting is possible with any of the alternatives. However, based on the preliminary nature of the engineering, it is not known how much blasting would be necessary, if any. Only under Alternative F3, for which increasing West Channel navigation clearances is proposed to mitigate shipping impacts, is there a known quantity of dredging and blasting. This would entail removal of a ridge of rock approximately 2,000 feet long and up to 750 feet wide would involve dredging of 63,000 cubic yards of surficial sediment and blasting to remove 16,100 cubic yards of bedrock. For this alternative only, the combination of drilling, blasting, and dredging is anticipated to last 1-3 months. Blasting under any other alternative is not anticipated to take place for more than 2-3 days total and may not be required at all. Ferry alternatives would likely require blasting and dredging near shore to provide adequate depth for the ferries. Except for the mitigation measures just described for Alternative F3, dredging is not considered likely under the

bridge alternatives. Under any alternative, dredged and blasted material is anticipated to be dumped at sea in accordance with section 103 of the Marine Protection, Research, and Sanctuaries Act, in areas permitted by the Environmental Protection Agency and Corps of Engineers.

Humpback Whale

The humpback whale (*Megaptera novaeangliae*) was federally listed as endangered in 1966. Before the mechanization of commercial whaling, the population of humpback whales was about 15,000. The International Whaling Commission (IWC) first protected humpback whales from commercial whaling in 1965, and such whaling ceased in the North Pacific. The whales were listed as endangered under the Endangered Species Act in 1973. The humpback whale is listed as “depleted” under the Marine Mammal Protection Act.

The Central North Pacific Stock, currently estimated at about 4,000 animals, is the group in question for this project. This stock of humpback whales generally winters in Hawaiian waters and summers along the North Pacific coast. Humpback whale distribution in summer is continuous from British Columbia to the Russian Far East, and humpbacks are present offshore in the Gulf of Alaska. The whales appear to return to the feeding areas where their mothers first brought them as calves, with evidence of some crossover to other areas but only at a rate of approximately one percent.

More than 500 humpback whales inhabit the waters near Southeast Alaska during the summer.¹ A NOAA Fisheries stock report² indicates 404 individual whales have been documented in the portion of Southeast Alaska that includes Chatham Strait and waterways to the north, and 275 have been documented in northern British Columbia (primarily near Langara Island). No counts have been completed specific to southern Southeast Alaska and the project area. There is no designated critical habitat for humpback whales as there is for Steller sea lions.

According to the NOAA Fisheries stock report, this stock is the focus of a large whale watching industry in Hawaii and a growing whale watching industry in Alaska and B.C. Regulations concerning minimum distance to keep from whales and how to operate vessels when in the vicinity of whales have been developed for Hawaiian waters in an attempt to minimize the impact of whale watching. In 2001, NMFS issued regulations to prohibit most approaches to humpback whales in Alaska to 100 yards (66 FR 29502; May 31, 2001). The growth of the whale watching industry is a concern to NOAA Fisheries, because preferred habitats could be abandoned if disturbance levels became too high. Noise is another, related concern. Continual noise appears to be the primary concern, with noise from an Acoustic Thermometry of Ocean Climate program, the U.S. Navy’s Low Frequency Active sonar program, shipping, and whale watching cited by NOAA Fisheries. Incidental or short-term noises are not mentioned.

Humpback whales commonly feed and breed over shallow banks but traverse the open ocean during migration. They prey on small schooling fish such as herring and swarms of krill by using bubbles that concentrate prey. They also feed in formation, herd prey, and practice lunge

¹ MacDonald, S.O., and J.A. Cook., The Mammal Fauna of Southeast Alaska, University of Alaska Fairbanks, 1999.

² NOAA Fisheries. 2002. “Stock Assessment Report: Humpback Whale (*Megaptera novaeangliae*): Central North Pacific Stock”

feeding as a group.³ Most of the Alaska summer whale population leaves by about October or November for Hawaii. Calving takes place in the wintering grounds. A few humpback whales stay in Alaska and may be seen in winter.

NOAA Fisheries documented human-caused injury or mortality to this stock of whales. Entanglement or other injury caused by fishing gear and nets appears to be the primary issue. Two incidents were noted in the general Ketchikan area. There is documentation of apparent injury to and death of humpback whale related to repeated underwater blasting in Newfoundland.

There is no data about seasonal abundance and distribution of humpback whales specific to Tongass Narrows. However, there is informed anecdotal information from a member of the marine mammal stranding network,⁴ an ADF&G biologist,⁵ and a spotter pilot,⁶ all based in Ketchikan, to indicate use of the area. Humpback whales may be found in Tongass Narrows year round, although the numbers are small much of the year, and they are seen only perhaps once or twice per month. There is a peak in activity in April and May, corresponding to herring spawning season, when daily sightings are common. Whales do not appear to use Tongass Narrows specifically as a migration route, and there is no evidence that Tongass Narrows is a favored location for critical activities, although the whales presumably may feed in the Narrows. As indication of relatively low numbers of whales in summer, a flightseeing air service based in Ketchikan advertises flying more than 100 miles north to Frederick Sound to see humpback whales. Another advertises flying south 40 miles or more to the shores of Prince of Wales Island near the mouth of Clarence Strait to view whales in summer.

Potential Impacts to Whales. The completed project is expected to have no population-level effects that are distinguishable from natural variation in numbers. Occasional individual passing whales could be exposed to increased noise from project operation (principally ferry engines/propellers); however, whales hear such noise in the area now, because Tongass Narrows is a busy shipping lane. They would likely move away from areas of excessive noise and disturbance. They do not stay in Tongass Narrows for extended periods; therefore, these disturbances are not expected to have a measurable impact on humpback whales.

Construction of the project would include activities that could disturb whales if completed while whales were present. These include the noise of reverse rotary drilling in submerged rock and substrate for placement of bridge piers, dredging West Channel for shipping (Alternative F3 only), and dredging near shore for ferry terminal construction. Underwater blasting is anticipated for Alternative F3 (for widening the shipping lane in West Channel), and blasting is a possibility for any of the alternatives. All of these activities would be scheduled for fall and winter, after most whales leave Alaska for wintering grounds and after the busy cruise ship season. Project commitments to ensure no measurable disturbance to humpback whales and other marine mammals are listed at the end of this document. Employing these measures, the project is not likely to adversely affect the humpback whale.

³ Wynne, Kate. Guide to Marine Mammals of Alaska, *University of Alaska Fairbanks*, 1997.

⁴ Freitag, Gary. 2000. *Personal communication*.

⁵ Porter, Boyd. 11/20/2003. *Personal communication*.

⁶ Masden, Michelle. 11/20/2003. *Personal communication*.

Steller Sea Lions

Steller sea lions (*Eumetopias jubatus*) number 100,000-140,000 worldwide.⁷ Approximately half live in Alaska. The western Alaska population of Steller sea lions, inhabiting the western Gulf of Alaska and Bering Sea, has declined substantially and is endangered. The Eastern Stock is the population of interest for this project, extending through the eastern Gulf of Alaska and along the coastal areas of Alaska, Canada, and the western Lower 48 states. This stock was listed as threatened in 1990. According to a NOAA Fisheries stock report,⁸ the eastern stock is stable or increasing in the northern portion of its range (Southeast Alaska and British Columbia). For the Southeast Alaska population, the trend is growth, from 6,898 animals in 1982 to 9,862 in 2000.

Steller sea lions feed on a wide variety of prey such pollock, flounder, herring, crab, rockfish, cod, salmon, squid, and octopus. Feeding occurs from the intertidal zone to the continental shelf.⁹

Critical habitat has been defined in Southeast Alaska at major haulouts and major rookeries (50 CFR 226.202). The nearest rookery is Forrester Island, and the nearest major haulouts are at Timbered Island and Cape Addington. All three sites are about 80 miles west of Tongass Narrows.

Steller sea lions have not been specifically studied or counted in Tongass Narrows. However, there is informed anecdotal information from a member of the marine mammal stranding network,¹⁰ an ADF&G biologist,¹¹ and a spotter pilot,¹² all based in Ketchikan, to indicate use of the area. Sea lions may be found in Tongass Narrows year round, although the numbers are small much of the year. There is a peak in activity in March-early May, corresponding to herring spawning season. At this time, it is reported that large pods of sea lions may occur the area (20-80 animals possible). In summer, most sea lions move to large rookeries (such as Forrester Island) for pupping and the next mating cycle. Small numbers of non-mating animals remain in the Tongass Narrows area but are infrequently seen. There is another small peak in activity in later summer, associated with salmon. There are not large numbers in winter.

There are no established haul-out sites in Tongass Narrows. Grindall Island, 12 miles west of the northern tip of Gravina Island, is a year round sea lion haulout but not a rookery. This appears to be the nearest haulout area. ADF&G has done aerial surveys of this site over a number of years (1982-1996) and never recorded animals there in summer (June/July) but has counted more than

⁷ Wynne, Kate. 1997. *Guide to Marine Mammals of Alaska*. Sea Grant College Program, University of Alaska Fairbanks.

⁸ NOAA Fisheries. 2002. "Stock Assessment Report: Steller Sea Lion (*Eumetopias jubatus*): Eastern U.S. Stock"

⁹ ADF&G, September 5, 2002. *Wildlife Notebook Series: Steller Sea Lions*, <http://www.state.ak.us/adfg/notebook/marine/sealion.htm>.

¹⁰ Freitag, Gary. 2000. *Personal communication*.

¹¹ Porter, Boyd. 11/20/2003. *Personal communication*.

¹² Masden, Michelle. 11/20/2003. *Personal communication*.

200 animals each on the only two non-summer counts: March 1993 and December 1994.¹³ The sea lions have been observed in Tongass Narrows around the fish hatchery, where large numbers of salmon congregate in late summer. In Ketchikan harbor itself, daily sighting of sea lions are not unusual in winter—more than in summer, when the harbor is busiest.

NOAA Fisheries reports concerns about fishing related injury and mortality, such as entanglement in fishing gear. Other causes of mortality are also reported (subsistence hunting, illegal shooting, elimination of sea lions for protection of aquaculture in B.C., etc.). There is no indication of substantial problems related to construction.

Potential Impact to Steller Sea Lions. No impact to the Steller Sea Lion population is anticipated from operation of any of the alternatives, once constructed. The habitat and population of sea lion prey, principally off-bottom fish, is not expected to be substantially affected. Sea lions could be exposed to increased noise from project operation (principally ferry engines), but this would be of the same character of noise already present in the Tongass Narrows shipping lanes and not distinguishable from daily and annual variations. Collision with vessels is not likely, because marine mammals in general tend to avoid collisions by using their excellent acoustic capabilities.

Construction of the project would include activities that could disturb sea lions if completed while sea lions were present. These include the noise of reverse rotary drilling in submerged rock and substrate, for placement of bridge pilings, dredging West Channel for shipping (Alternative F3 only), and dredging near shore for ferry terminal construction. Underwater blasting is anticipated for Alternative F3 (for widening the shipping lane in West Channel), and blasting is a possibility for any of the alternatives. NOAA Fisheries stated in a June 4, 2001 letter, “Steller sea lions are unlikely to be affected by underwater noise associated with project construction activities because they have higher thresholds for noise disturbance and are able to raise their heads out of the water to avoid noise transmission.” Nonetheless, all of these activities would be scheduled for fall and winter, between late summer salmon runs and spring herring runs that attract sea lions. Project commitments to ensure no disturbance to Steller sea lions and other marine mammals are listed at the end of this document. Employing these measures, the project is not likely to adversely affect the Steller sea lion.

Mitigating Measures for Marine Mammal Protection

The June 4, 2001 letter from NOAA Fisheries (Alaska) provided an initial response to a request for informal consultation in accordance with Section 7 of the Endangered Species Act and recommended mitigation measures. An October 3, 2003 letter from NOAA Fisheries (Maryland), in response the draft EIS, recommended further mitigation measures. Note that the draft EIS erroneously indicated that pile “driving” would be part of project construction. A reverse rotary drill actually would be employed to drill into submerged rock and substrate for the bridge alternatives. Noise would occur, but the intense spikes of sound and shock waves of pile driving would not be produced. To ensure no injury to or harassment of Steller sea lions, humpback whales, or other marine mammals, the project is committed to the measures listed

¹³ Gerke, Brandee. 2003.

below. These are designed to be compatible with Essential Fish Habitat (EFH) mitigation measures for the project.

- In-water work will occur outside the springtime months, when there is greatest sea lion use of the project area. The EFH work window for in-water work in Tongass Narrows is July 1 to February 28, and this would be followed for marine mammals as well. Major work, such as any dredging or in-water blasting required, would occur only November 1 to February 28. This timing avoids runs of salmon and herring, on which humpback whales and Steller sea lions feed.
- The construction contract will require a blasting plan approved by NOAA Fisheries, should blasting be necessary.
- The construction contract will require a dredging plan approved by NOAA Fisheries, should dredging be required.
- The project will ensure use of trained and approved observers to indicate when sea lions are within a 50 m zone around pier work or other in-water work, and activity will wait until the animals move out of the area, or work would be stopped if mammals were to enter the area.
- An in-water warning sound will be issued prior to drilling or blasting to allow any marine mammals to voluntarily move to a comfortable distance.
- All necessary permits and agency approvals will be acquired prior to construction and stipulations will be incorporated into contract specifications.
- If necessary, based on the alternative ultimately selected and the design and construction methods ultimately decided upon, an incidental harassment authorization might need to be obtained from NOAA Fisheries.

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Attachment B:
2004 Letter of Concurrence



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

February 17, 2004

Bill Ballard, State Environmental Coordinator
Statewide Design and Engineering Services Division
Alaska Department of Transportation and Public Facilities
3132 Channel Drive
Juneau, Alaska 99801-7898

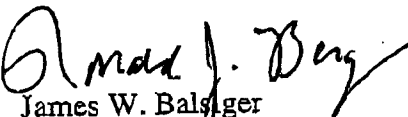

Dear Mr. Ballard:

This letter responds to your Biological Assessment of the Gravina Access Project on federally listed humpback whales (*Megaptera novaeangliae*) and Steller sea lions (*Eumetopias jubatus*). NOAA Fisheries has reviewed the November, 2003 Biological Assessment and concurs with your conclusion, that, as described, the Gravina Access Project is not likely to adversely affect listed species or their designated critical habitat.

No further consultation on the effects of the Gravina Access Project on endangered humpback whales or threatened Steller sea lions is required. This determination will be reconsidered should the proposed action change in a manner that may result in additional effects on listed species.

If you have any questions regarding this project, please contact Brandee Gerke of my staff at (907) 586-7248. Thank you for your cooperation in the effort to protect threatened and endangered species.

Sincerely,


For  James W. Balsiger
Administrator, Alaska Region



Attachment C:

MMPA and ESA Section 7 Consultation Updates

To: Jim Lowell, DOT&PF John Barnett, DOT&PF	
From: Leandra Cleveland, HDR	Project: Gravina Access Project Supplemental Environmental Impact Statement
Copy: File	
Date: November 30, 2011	Job No: 162165
Re: MMPA and ESA Section 7 Consultation Updates	

This memorandum describes the changes to the Gravina Access Project alternatives and associated effects to Steller sea lions (*Eumetopias jubatus*), designated Steller sea lion critical habitat and humpback whales (*Megaptera novaeangliae*) since the 2004 letter of concurrence was issued by National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA).

1 Consultation History

Consultation with the U.S. Fish and Wildlife Service (USFWS) and NMFS regarding the potential effects of the Gravina Access Project, a proposed federal action, on species listed as threatened or endangered under ESA and MMPA was concluded in 2004. In 2003, when ESA Section 7 consultation for the project was underway, there were no species under the jurisdiction of the USFWS listed as threatened or endangered in the project area. For NMFS, the primary species of concern were threatened Steller sea lions and endangered humpback whales, which are also protected under the MMPA. The applicants, FHWA and DOT&PF, prepared a Biological Assessment (BA) in 2003 and NMFS concurred that, with the proposed mitigation measures, the proposed project may affect, but was not likely to adversely affect listed species or their designated critical habitat in the project area.

In July 2004, FHWA and DOT&PF issued a Final Environmental Impact Statement (FEIS) for the Gravina Access Project, identifying a preferred alternative (F1). Alternative F1 was the selected alternative in FHWA's Record of Decision, which was issued on September 15, 2004.

A Supplemental Environmental Impact Assessment (SEIS) is currently being prepared to address modifications and to reevaluate alternatives to the proposed project. This memorandum describes project modifications that may affect the listed species identified in the 2003 BA, their designated critical habitat, and any new species that have been listed since ESA consultation was completed.

2 ESA Listed Species

Since 2003, no additional USFWS or NMFS species have been listed as threatened or endangered under the ESA and there have been no changes to critical habitat designations in the project action area. No additional listings under the MMPA have occurred since 2003.

3 SEIS Alternatives

The 2003 BA and FEIS evaluated the effects of six bridge alternatives (C3a, C3b, C4, D1, F1, and F3) and three ferry alternatives (G2, G3, and G4). The SEIS alternatives consist of two bridge alternatives (C3-4 and F3) and four ferry alternatives (G2, G3, G4, and G4v).

3.1 Bridge Alternatives

The FHWA and DOT&PF identified two reasonable bridge alternatives to evaluate in the SEIS: Alternatives C3-4 and F3. The Alternative C3-4 bridge is located near the airport. Alternative F3 includes two bridges crossing at Pennock Island: one bridge crosses over East Channel and one crosses over West Channel.

Alternative C3-4 is a new alternative similar to Alternatives C3a and C4 evaluated in the 2003 BA. Alternative F3 is nearly identical to Alternative F3 evaluated in the 2003 BA with minor modifications to bridge design, dredging quantities, and pier placement in Tongass Narrows. The remaining bridge alternatives evaluated in the 2003 BA (C3a, C3b, C4, D1, and F1) have been eliminated from detailed consideration in the SEIS.

3.1.1 Alternative C3-4 (Airport Bridge)

This alternative would follow the conceptual Bench Road alignment on Revillagigedo Island and would cross over Tongass Avenue and Tongass Narrows, and then turn southward to parallel the northern airport taxiway and airport runway, and ultimately touch down (reach the ground surface) on Gravina Island north of the airport terminal at the existing parking lot.

The Alternative C3-4 bridge across Tongass Narrows would be 48 feet wide and approximately 4,190 feet long. The maximum height of the bridge over the navigational channel would be approximately 280 feet above Mean Higher High Water (MHHW). Alternative C3-4 would require placement of twelve piers and 42,000 cubic yards of fill in Tongass Narrows.

3.1.2 Alternative F3 (Pennock Island Bridges)

The East Channel bridge would connect directly to South Tongass Highway on Revillagigedo Island. From this terminus, the bridge would cross the East Channel to Pennock Island. From Pennock Island, the West Channel bridge would cross to Gravina Island and connect with the Gravina Island Highway, approximately 3 miles south of the airport. The East Channel bridge would be approximately 1,985 feet long and have a maximum height of approximately 115 feet. The bridge would have a vertical navigational clearance of 60 feet above MHHW. The West Channel bridge would be approximately 2,470 feet long and have a maximum height of approximately 270 feet. The bridge would have a vertical navigational clearance of 200 feet above MHHW. In addition, the bridge will require placement of six piers in Tongass Narrows; three in the east channel and three in the west channel.

In order to improve its navigational characteristics for cruise ships transiting the West Channel, the narrowest portion of the channel bottom would be widened. The proposed modifications would widen this portion of the channel to 750 feet. The center 550 feet would have a minimum depth of 40 feet at low tide and the 100 feet of channel on either side would have a minimum depth of 30 feet at low tide. The dredged quantity is approximately 213,000 cubic yards over 15 acres of fractured rock and bedrock that would require blasting before removal by dredge. All material removed would be disposed of at a pre-approved marine location. Channel widening would impact intertidal and subtidal habitat in areas adjacent to Gravina and Pennock islands.

3.2 Ferry Alternatives

Alternatives G2, G3, and G4 would augment the existing airport ferry service with two new ferry vessels and construction of a new ferry terminal on each side of Tongass Narrows. Alternative G4v is a variant of Alternative G4 that includes development and improvement of some ferry facilities, but no new ferry terminals or new ferry service. All ferry alternatives include:

- A 60-passenger waiting facility at the existing ferry terminal on Revillagigedo Island.
- A new heavy freight dock on a 2.5-acre site near the airport, just to the south of the existing ferry berth to provide heavy freight access to Gravina Island for highway loads that cannot be accommodated by the shuttle ferry.
- Reconstruction of the existing airport ferry transfer bridges and ramps, if needed to meet current design standards.
- Upgrades and improvements for all sidewalks and wheelchair ramps associated with the airport ferry facilities to meet applicable standards.
- Replacement of the deficient existing ferry layup dock and transfer bridge to support layup and maintenance of the airport shuttle ferry system.

Alternatives G2, G3, and G4 are nearly identical to the ferry alternatives evaluated as part of the 2003 BA. Minor changes to dock design and dredging quantities in Tongass Narrows have occurred since the 2003 BA.

3.2.1 Alternative G2 (Peninsula Point to Lewis Point)

Alternative G2 would be a new ferry service for vehicles and passengers between Peninsula Point on Revillagigedo Island and Lewis Point on Gravina Island. Two new ferry vessels and construction of a new ferry terminal on each side of Tongass Narrows would be required for this alternative. Alternative G2 would require the removal of approximately 1,400 cubic yards of material in Tongass Narrows near the new Gravina Island terminal at Lewis Point, and the placement of 21,000 cubic yards of fill material.

3.2.2 Alternative G3 (Downtown to South of Airport)

Alternative G3 would be new ferry service for vehicles and passengers between Ketchikan (near the Plaza Mall at Bar Point) on Revillagigedo Island and a location near Clump Cove on Gravina Island. This alternative would require construction of a new ferry terminal on each side of Tongass Narrows and two new ferry vessels. Dredging (18,600 cubic yards) may be required to provide adequate navigational depth for the new ferry terminal on Revillagigedo Island. The existing breakwater could also be widened and extended for use as the ferry terminal pier. The placement of 18,000 cubic yards of fill material would also be required.

3.2.3 Alternative G4 (New Ferry Adjacent to Existing Ferry)

Alternative G4 would be new ferry service for vehicles and passengers with new ferry terminals adjacent to the existing ferry terminals and an adjacent airport ferry route from Charcoal Point on Revillagigedo Island to the airport on Gravina Island. Alternative G4 would require the removal of approximately 15,200 cubic yards of material near both the Revillagigedo Island and Gravina Island terminals.

3.2.4 Alternative G4v (Lower Cost Variant of Alternative G4)

Alternative G4v is a lower cost variant to Alternative G4 to address immediate needs for improved facilities for airport travelers and heavy freight movement. No dredging would occur as a result of this alternative. Improvements under this alternative include a new waiting facility on Revillagigedo Island, shuttle vans, new freight dock, new ferry lay up dock, upgraded ferry transfer bridges, and improved sidewalks.

4 Project Impacts to Listed Species

Although the SEIS alternatives are slightly modified relative to the alternatives evaluated in the FEIS, the project effects presented in the 2003 BA for humpback whales and Steller sea lions, and designated critical habitat for Steller sea lions, remain the same. Refer to the 2003 BA for a detailed discussion of project impacts. Therefore, **the project may affect, but is not likely to adversely affect** Steller sea lions, Steller sea lion designated critical habitat, or humpback whales within the action area.

5 Mitigating Measures for Marine Mammal Protection

Mitigation measures developed for the 2003 BA are still applicable and are proposed for use with the SEIS alternatives. To ensure no injury to or harassment of Steller sea lions, humpback whales, or other marine mammals, the project is committed to the measures listed below. These are designed to be compatible with Essential Fish Habitat (EFH) mitigation measures for the project.

- In-water work will occur outside the springtime months, when there is greatest sea lion use of the project area. The EFH work window for in-water work in Tongass Narrows is July 1 to February 28, and this would be followed for marine mammals as well. Major work, such as any dredging or in-water blasting required, would occur only November 1 to February 28. This timing avoids runs of salmon and herring, on which humpback whales and Steller sea lions feed.
- The construction contract will require a blasting plan approved by NMFS, should blasting be necessary.
- The construction contract will require a dredging plan approved by NMFS, should dredging be required.
- The project will ensure use of trained and approved observers to indicate when sea lions and humpback whales are within a 50 m zone around pier work or other in-water work, and activity will wait until the animals move out of the area, or work would be stopped if marine mammals were to enter the area.
- An in-water warning sound will be issued prior to drilling or blasting to allow any marine mammals to voluntarily move to a comfortable distance.
- All necessary permits and agency approvals will be acquired prior to construction and stipulations will be incorporated into contract specifications.
- If necessary, based on the alternative ultimately selected and the design and construction methods ultimately decided upon, an incidental harassment authorization might need to be obtained from NMFS.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service

P.O. Box 21668

Juneau, Alaska 99802-1668

September 14, 2012

Kris Riesenbergl
Federal Highway Administration
P.O. Box 21648
Juneau, AK 99802

Dear Mr. Riesenbergl:

The National Marine Fisheries Service (NMFS) has reviewed the Federal Highway Administration (FHWA) Biological Assessment (BA) for the Gravina Access Project near Ketchikan, Alaska. In your accompanying letter to NMFS, you requested concurrence that the proposed action "may affect, but is not likely to adversely affect" humpback whales and Steller sea lions pursuant to Section 7 of the Endangered Species Act (ESA). An agency action is considered not likely to adversely affect listed species or designated critical habitat when its effects are expected to be completely beneficial, discountable or insignificant. Beneficial effects are synchronous positive effects without any adverse effects to the species or critical habitat. Discountable effects are those extremely unlikely to occur. Insignificant effects relate to the size of the impact and may not reach the scale where take occurs. Based on best judgement, a person would not expect discountable effects to occur; or to be able to meaningfully measure, detect or evaluate insignificant effects.

Summary of Action

In 2004, FHWA issued a Record of Decision which identified Alternative F1 in the Final Environmental Impact Statement as the Selected Alternative. This Alternative involved the construction of bridges across the East Channel and West Channel of Tongass Narrows at Pennock Island connecting Gravina Island to the mainland. In addition, the Gravina Island Highway was proposed to connect the bridge crossing to the airport. This construction was completed in 2008. NMFS issued a letter of concurrence at this time based on the 2003 BA that the action *may affect, but is not likely to adversely affect* listed species in the action area.

Since that time, FHWA has been directed to find a lower cost alternative for access to the airport and Gravina Island. NMFS understands that FHWA is re-examining the alternatives in a Supplemental Environmental Impact Statement (SEIS) to identify and select a new alternative.



Two bridge alternatives are being considered: C3-4 and F3. The C3-4 bridge is located near the airport, while the F3 alternative includes two bridges crossing at Pennock Island. The C3-4 alternative would result in a bridge 48 feet wide and 4,190 feet long, and would require placement of twelve piers and 42,000 cubic yards of fill in Tongass Narrows. The F3 alternative would involve building an East Channel and West Channel bridge connecting Revillagigedo Island with Gravina Island. NMFS understands that the East Channel Bridge would be 1,985 feet long and 115 feet high, while the West Channel bridge would be 2,470 feet long and 270 feet high. These bridges would require the placement of six piers in Tongass Narrows and would involve dredging the channel bottom to improve navigation. The dredging quantity is estimated at 213,000 cubic yards over 15 acres of fractured rock and bedrock that would require blasting before removal.

Three ferry alternatives are also being considered, which are almost identical to those considered in the 2003 BA and 2004 letter of concurrence from NMFS. These alternatives would involve the construction of new ferry terminals and dredging in Tongass Narrows with quantities removed ranging from 1,400 to 18,600 cubic yards. Two of these alternatives would also involve the placement of 18,000-21,000 cubic yards of material.

Listed Species

Species included in this consultation include the endangered humpback whale (*Megaptera novangliaea*) and the Eastern distinct population segment (DPS) of Steller sea lion (*Eumetopias jubatus*).

Humpback whales

Humpback whales are the most common large cetacean in Southeast Alaska. The abundance of whales that forage throughout British Columbia and Southeast Alaska is estimated at between 3000 and 5000 individuals with an increasing population trend of 4 to 8% annually (Calambokidis et al. 2008; Barlow et al. 2011). Although migration timing varies among individuals, most whales depart for Hawaii in fall or winter and begin returning to Southeast Alaska in spring, with continued returns through the summer giving a peak occurrence in Southeast Alaska during late summer to early fall. However, there are significant overlaps in departures and returns (Baker et al. 1985; Straley 1990). In Southeast Alaska, primary prey species include euphausiids and small schooling fishes such as capelin, Pacific sand lance, walleye pollock and Pacific herring (Wing and Kreiger 1983; Kreiger and Wing 1984, 1986; Straley 1990).

Within Southeast Alaska, humpback whales are found throughout all major waterways and in a variety of habitats, including open-ocean entrances, open-strait environments, near-shore waters, areas with strong tidal currents and secluded bays and inlets. However, annual concentrations are consistent at several locations primarily around northern southeast Alaska, with lesser historical presence in Sumner and Clarence Strait (Baker et al. 1985; Straley et al. 1995; Dahlheim 2009). These patterns of occurrence likely follow the spatial and temporal changes in types, densities and distribution of prey (Bryant et al. 1981; Baker et al. 1985; Kreiger and Wing 1986; Baker et al. 1992) and the presence of whales may reflect local abundance and availability. Both fish and euphausiid densities

show significant annual, seasonal and spatial variations (Wing and Kreiger 1983) and humpbacks adjust their foraging locations to areas of high prey densities.

Steller sea lion

In Southeast Alaska, most Steller sea lions are considered to be part of the threatened eastern DPS, although some intermingling of animals from the endangered western DPS may occur. Steller sea lions are marine based predators, but rely on terrestrial rookeries and haulouts for activities such as reproduction and predator avoidance. Steller sea lion critical habitat is defined as a terrestrial zone, an aquatic zone, and an air zone that extends 3,000 feet (0.9 km) landward, seaward, and above, respectively, from each major rookery and major haulout in Southeast Alaska.

The foraging strategy of Steller sea lions is strongly influenced by seasonality of both sea lion reproductive activities, which occur on rookeries, and the ephemeral nature of many prey species. Steller sea lions in Southeast Alaska are considered opportunistic foragers as they will include prey items and relocate based upon seasonal prey availability. In general, sea lions forage on herring aggregations in winter, spawning fish, including herring and eulachon, in spring, and various other species throughout the year, including herring (Winship and Trites 2003; Sigler et al. 2009; Womble et al. 2009). No rookeries or major haulouts designated as critical habitat are found in the action area.

Effects of Proposed Action on Listed Species

Marine Mammal Distribution

Humpback whales and Steller sea lions may be found in and around Gravina Island in the Tongass Narrows at any given time. However, concentrated numbers are most likely to occur during periods of seasonal prey aggregation. Herring, salmon, eulachon and euphausiids are among the species that congregate ephemerally. In the spring and fall, humpback whales are considered fairly common in the Narrows and are locally observed at least 1-2 times per month (G. Freitag, pers. comm.).

Given that any in-water dredging or blasting would occur only from November 1 to February 28, avoiding seasonal concentrations of listed species, in-water acoustic disturbance and disruption of foraging is expected to be discountable. In addition, observers will be used to ensure that in-water work will not occur if listed species are within a 50 m zone. Thus, effects from construction activities are considered to be both discountable and insignificant.

Vessels transiting the marine environment have the potential to collide with, or strike, marine mammals (Laist et al. 2001; Jensen and Silber 2003). Most collisions that have killed or severely injured whales involved vessels greater than 80 meters in length traveling at speed in excess of 13 knots (Laist et al. 2001). In the case of the Gravina Access Project, it is possible that an increased risk of vessel strike could occur with additional ferry operation. However, this is expected to be discountable and insignificant as ferries operate at six knots (Riesenberg pers. comm.), which is a lower speed than those associated with most cases of injury or mortality to marine mammals. In addition, humpback whale numbers are generally not concentrated in Tongass Narrows.

Information provided in the NMFS marine mammal stranding database includes only three reports of vessel collision with marine mammals in the Ketchikan and Metlakatla areas since 1999. It is likely that collisions related to vessels of all types in this region will continue to be rare occurrences. Thus, vessel operations related to this project are not expected to present a significant risk to listed species.

Anthropogenic sources of noise can negatively impact marine mammals by changing their behavior, possibly resulting in decreases in health and reproduction. Research in Alaska has shown that humpback whales disturbed by marine vessels will move away from feeding areas to avoid the disturbance (Baker and Herman 1989), or change the rate and repetitiveness of their feeding calls (Doyle et al. 2008). Ferry service or marine vessels engaged in bridge construction have the potential to change the behavior of marine mammals, particularly if they approach the animals too quickly or too closely. However, these vessels must comply with the Marine Mammal Protection Act, ESA and regulations for approaching humpback whales in Alaska (50 CFR 224.103) which require that vessels maintain a 100 yard approach distance from these animals. Given these regulations, and the fact that most in-water work will be conducted during winter months when few listed species are present in the action area, we would expect effects to be discountable.

Conclusion

NMFS concurs with your agency's determination that the planned action "may affect, but is not likely to adversely affect" ESA-listed species under NMFS jurisdiction, including humpback whales and Steller sea lion. Given the lack of significant temporal and spatial overlap between the action and listed species as well as precautionary measures in place should overlap occur, NMFS concludes that this action will have, at most, an insignificant or discountable effect on these listed species. In addition, there is no designated critical habitat in or near the action area for Steller sea lions or humpback whales.

Re-initiation of consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) take of a listed species occurs, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered, (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered, or (4) a new species is listed or critical habitat designated that may be affected by the action. Should you have further questions or concerns, please contact Aleria Jensen at (907)586-7248 or Aleria.Jensen@noaa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'J. Balsiger', with a stylized flourish at the end.

James W. Balsiger, Ph.D. for J/D
Administrator, Alaska Region

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